

Englishman River Regional Park
A Conservation Area along the River Corridor



Five-Year Management Plan

November 2008

Prepared for:

The Regional District of Nanaimo, Recreation and Parks Department
and
The Nature Trust of British Columbia

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- S. Herle -- Regional Parks and Trails Advisory Committee and Mayor of Parksville
- J. Stanhope -- Regional Parks and Trails Advisory Committee and Chair, RDN Board.

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**Englishman River Regional Park
A Conservation Area along the River Corridor
Management Plan**

The signatories of the primary stakeholders approve the 2009-2014 Management Plan for Englishman River Regional Park and agree to work cooperatively on the implementation of management strategies.

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Date

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Date

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List of Acronyms

ATV	All-Terrain Vehicle
AWS	Arrowsmith Water Services
BCCF	BC Conservation Foundation
BCTC	BC Transmission Corporation
BMP	Best Management Practices
CDC	Conservation Data Centre
CDF	Coastal Douglas Fir Biogeoclimatic Zone
CFDC	Community Fisheries Development Centre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Department of Fisheries and Oceans Canada
DUC	Ducks Unlimited Canada
ERRPCA	Englishman River Regional Park: A Conservation Area along the River Corridor
ERWRP	Englishman River Watershed Recovery Plan
LWD	Large woody debris
MOE	BC Ministry of Environment
MOF	BC Ministry of Forests
MOT	BC Ministry of Transportation
MVIHES	Mid-Vancouver Island Habitat Enhancement Society
NCC	Nature Conservancy of Canada
OCP	Official Community Plan
ORV	Off-Road Vehicle
P-QB WMA	Parksville-Qualicum Beach Wildlife Management Area
PSEF	Pacific Salmon Endowment Fund
RDN	Regional District of Nanaimo
ROW	Right-of-Way
RPTAC	Regional Parks and Trails Advisory Committee
TNT	The Nature Trust of British Columbia
VIU	Vancouver Island University
WMA	Wildlife Management Area

Executive Summary

The “Englishman River Regional Park: A Conservation Area along the River Corridor” (ERRPCA) is a strategic component of the Englishman River conservation corridor, a 20-km long system of protected land and water running from the Englishman River Falls Provincial Park to the Englishman River estuary.

The ERRPCA is comprised of two parcels located mostly on the north side of the Englishman River that are owned by the Province, the Nature Trust of British Columbia (TNT), Ducks Unlimited Canada (DUC) and the Nature Conservancy of Canada (NCC). Through lease agreements with these property owners, the Regional District of Nanaimo (RDN) manages the ERRPCA as a regional park with the responsibility of ensuring that management and operation are compatible with the conservation aims of the landowners. The RDN’s mandate is focused on the lands on the north side of the river; the small southern portions will be managed by TNT in conjunction with other conservation lands in this area.

Planning Process: The RDN and landowners cost-shared this Management Plan to guide the management and operation of the ERRPCA. Its development was overseen by RDN parks staff and a Steering Committee comprised of representatives from the landowners and the RDN Regional Parks and Trails Advisory Committee (RPTAC). A preliminary inventory and assessment of natural resources was completed by LGL Limited in Summer 2007; their report is contained in Appendix A. The planning process included two open houses, a users' survey and a questionnaire regarding the final draft of the Plan. A variety of organizations, agencies and individuals were contacted directly regarding their interests in the ERRPCA and to review the final draft.

This Management Plan outlines the long-term vision, management principles and goals for the ERRPCA and provides specific policies and actions for the management and stewardship of the natural, cultural and recreational features of the park. This document represents the first management plan for the park, with the intent that it will be reviewed and updated every five years.

Conservation and Recreation: The ERRPCA represents important conservation values:

- The ERRPCA has the potential to mature into an old-growth forest representative of the Moist Maritime subzone of the Coastal Douglas-fir biogeoclimatic zone (CDFmm), one of the rarest ecological zones in BC; undisturbed examples of this type of forest ecosystem are dwindling.

- Eight provincial or federally-designated species at risk are known to occur, and an additional 26 at-risk species probably or possibly occur in the ERRPCA.
- The Englishman River supports all species of salmon. A hatchery and over 4.4 km of side-channels, constructed by fisheries agencies and the former timber companies that owned the property to increase salmon rearing habitat, are located within the ERRPCA. Several non-profit organizations are active in running the hatchery, maintaining the channels, and monitoring fish populations and habitat conditions.

The ERRPCA also has a long history of informal recreation use, with some 13 kilometres of trails and roads, several popular fishing spots and viewpoints, and benches and picnic tables, constructed by non-profits. Horseback riding has been a traditional use. Motorized vehicles are restricted by the presence of a gate at the entry of the service road; however, unauthorized use by ATVs and dirt bikes still exists.

The overarching management issue in the ERRPCA is achieving environmental protection while still allowing appropriate recreational use. The responses received from the user survey and the discussions at open houses reflected a desire to minimize the human use footprint and to focus on habitat protection and enhancement. Conflicts between conservation and recreation interests were evident, particularly with respect to horse crossings through the river. An interpretive component was supported in the form of self-guided trails but there was less appetite for 'hard' facilities (e.g., extensive signage or a nature centre).

Vision and Goals: The vision for the ERRPCA is as follows:

As part of the Englishman River conservation corridor, the ERRPCA is a place where ecological functions are preserved, where fish and wildlife habitats are actively protected and enhanced, and where people can experience healthy ecosystems in ways that do not threaten their integrity.

Achieving this Vision is guided by the lease agreements and associated covenants between the RDN and property owners, and the following **Management Goals**:

1. **Cooperative Management:** To work with partnering agencies, community stewardship and recreational groups, educational institutions, neighbouring residents and the public to effectively manage the ERRPCA to meet the management goals.
2. **Environmental Conservation:** To protect and conserve the long-term ecological integrity of aquatic and terrestrial habitats within the ERRPCA and as a component of the greater Englishman River conservation corridor.

3. Recreation: To ensure that recreational uses in the ERRPCA are sensitive to the environment, have minimal negative impact on its ecological assets and contribute positively to the quality of life in the Regional District.
4. Education and Interpretation: To encourage and develop educational and interpretive opportunities to enrich the public's experience of the ERRPCA, and to enhance an appreciation and foster stewardship of its natural assets.
5. Public Safety and Park Security: To provide a safe area where natural and human-made hazards are minimized and neighbouring private property is respected.

Management Policies and Actions: The Plan sets out a series of Management Policies and accompanying Operational Actions to move towards achieving these goals over the next 5 years. The Policies are detailed in Section 6 and summarized below. The Operational Actions are detailed in Section 7, and are subject to review, revision and re-prioritization by the ERRPCA Management Steering Committee.

Topic	Policy
Cooperative Management	<ul style="list-style-type: none"> • Establish management and advisory committee to oversee the management of the park. • Conclude and implement an operating agreement with DFO regarding management of the fish hatchery and side channels. • Work with conservation partners to identify ongoing caretaking services. • Identify ways to ensure ongoing protection of natural buffers around the perimeter of the park. • Work with the current permit holder and provincial Inspector of Mines to complete reclamation of the gravel pit, and develop plans for habitat restoration and future waterworks.
Park Use Zones	<ul style="list-style-type: none"> • Establish a system of park use zones to provide a framework in which to manage the ERRPCA.
Conservation	<ul style="list-style-type: none"> • Establish inventory and monitoring programs that support the conservation of terrestrial ecosystems and wildlife populations in the ERRPCA. • Work with stewardship partners to manage, restore and monitor the aquatic and riparian habitats along the Englishman River within the park.
Recreation	<ul style="list-style-type: none"> • Manage accesses to the ERRPCA to ensure public safety, avoid or reduce impacts to natural values, and minimize adverse impacts on neighbours. • Manage the trail network to protect sensitive areas

	from recreational impacts while providing sustainable recreation.
Education and Interpretation	<ul style="list-style-type: none">• Improve information about the ERRPCA through signage, brochures and web-based applications.• Work with conservation and education partners to establish an interpretive signage and self-guided trail program.• Develop partnerships with educational institutions to utilize the ERRPCA as an environmental classroom.• Examine the potential use of existing park buildings as future interpretive and educational facilities.
Public Safety and Security	<ul style="list-style-type: none">• Identify and raise awareness among the visiting public of hazards within the ERRPCA.• Coordinate emergency responses and fire management with local agencies.

1.0 Introduction

1.1. Overview of the ERRPCA

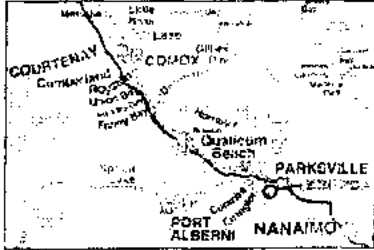


Figure 1.1 ERRPCA location

The “Englishman River Regional Park: a Conservation Area along the River Corridor” (ERRPCA) is located southeast of the City of Parksville, about five kilometres upriver from the Englishman River estuary (Figure 1.1). It consists of 207 hectares of floodplain and forest land, and includes almost five kilometres of river frontage, two constructed side channels, and a community salmon hatchery.

The ERRPCA is comprised of two parcels that make up Block 602 located mostly on the north side of the Englishman River (Figure 1.1). Lot 1 is owned by the Province and the remainder of Block 602 is owned by the Nature Trust of British Columbia (TNT), Ducks Unlimited Canada (DUC) and the Nature Conservancy of Canada (NCC). Two small portions spill over to the south side of the river, adjacent to conservation lands (Block 564) owned by TNT.

Operationally and for the purposes of this Plan, management of the ERRPCA is focused on the north side of the river; the small southern

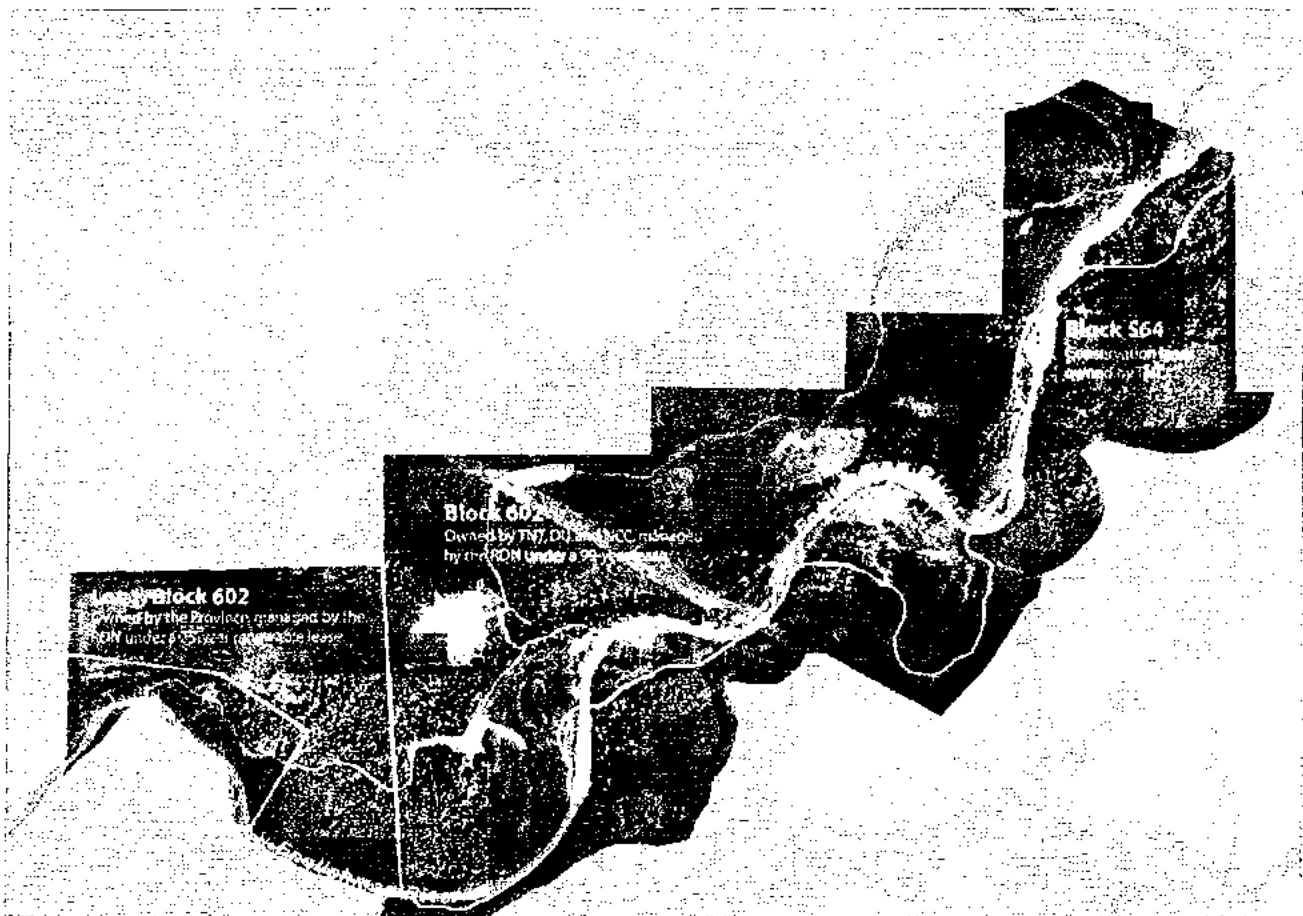


Figure 1.2 Boundaries of the ERRPCA (shown in green)

portions will be managed by TNT in conjunction with Block 564.

In the past, the ERRPCA lands were used primarily as managed forest and for informal recreational use. A fish hatchery and two spawning channels were built in the lower Englishman River in the 1990's in an effort to restore salmonid populations. However, other than a pre-existing gravel pit and an access road to the hatchery, the property is largely undeveloped and has no water or power services.

1.1.1 Acquisition as a Park/Conservation Area

In 2003, TNT led a partnership of agencies and funding organizations to purchase the ERRPCA property from then owners TimberWest Ltd. In the face of growing development pressure in the Oceanside area, the property was acquired to protect fish and wildlife habitat, preserve a long-term drinking water supply, and allow continuing access for passive outdoor recreation. The acquisition forms part of a larger conservation corridor stretching some 20 kilometres along the river from the estuary to Englishman River Falls Provincial Park.

Through lease agreements with the agencies that now own the property (TNT, DUC, NCC and the Province), the Regional District of Nanaimo (RDN) has become the manager of the ERRPCA with the responsibility of ensuring that management and operation as a regional park are compatible with the conservation aims of the landowners.

1.2. The Stakeholders

A variety of agencies and organizations are involved in the acquisition of the ERRPCA and/or have an interest in its use and management:

Major funders, land title holders	The Nature Trust of BC (TNT) BC Ministry of Environment (MOE) Ducks Unlimited Canada (DUC) Nature Conservancy of Canada (NCC) Regional District of Nanaimo (RDN)
Other funders	Pacific Estuary Conservation Program Pacific Salmon Foundation Habitat Conservation Trust Fund City of Parksville Fisheries and Oceans Canada (DFO) EnCana TD Friends of the Environment Mid-Island Wildlife Watch Parksville-Qualicum Fish & Game Club Arrowsmith Naturalists Chemainus Rod & Gun Ministry of Transportation
Aboriginal land claim, archaeological sites	Nanosee First Nation Qualicum First Nation
Land and/or resource uses	Arrowsmith Water Service (drinking water) Terasen Gas (utility right of way)

	BC Hydro Authority/Transmission Corp. (right of way) Haylock Bros. Paving Ltd. (gravel permit)
Fisheries restoration and enhancement, environmental interests	Fisheries and Oceans Canada Community Fisheries Development Centre (CFDC) BC Conservation Foundation (BCCF) Englishman River Watershed Recovery Plan Steering Committee (ERWRP) Mid-Vancouver Island Habitat Enhancement Society (MVIHES) Arrowsmith Naturalists Streamkeeper groups
Other interests	Silver Spur Riding Club Errington Fire Dept. Neighbouring landowners Local businesses, resorts School district, Vancouver Island University (VIU), Local residents

Table 1.1 ERRPCA Stakeholders

1.3. Purpose of the Management Plan

The RDN and TNT have cost-shared the development of this plan to guide the management and operation of the ERRPCA for the next five to ten years. It outlines the long-term vision, management principles and goals for the property and provides specific policies and actions for the management and stewardship of the natural, cultural and recreational features of the park.

This document represents the first management plan for the park, with the intent that it will be reviewed and updated every five years.

1.4. Plan Organization

This management plan includes the following sections:

- **Methodology:** A summary of the methods used to create this Plan and results of the consultation processes.
- **Plan Context:** An overview of land status and natural, recreational, resource, educational and cultural values of the ERRPCA.
- **Issues Summary:** Identification of the major issues in the ERRPCA identified through the consultation and context discussion.
- **Long-term Vision, Management Principles and Goals:** Defines the vision, outlines the key components of the park operating framework and identifies management goals.
- **Management Policies:** Sets out policies regarding cooperative management, park use zones; conservation; recreation; public safety and security; education and interpretation; and park funding.
- **Operational Actions:** Identifies actions for five-year management plan term.

2.0 The Plan Process - Method and Results

2.1. Approach

The creation of this Management Plan was overseen by RDN parks staff and a Steering Committee comprised of representatives from TNT and the RDN Regional Parks and Trails Advisory Committee (RPTAC). The Plan was developed in three phases:

Phase 1 – Inventory and Analysis (June – October 2007)

- a. Develop draft vision, principles and goals.
- b. Conduct baseline environmental inventory and assessment.
- c. Inventory human use and values through a user survey.

Phase 2 – Consultations and Evaluations (August – October 2007)

- a. Interview agencies and organizations active in the ERRPCA.
- b. Develop 3 alternative conceptual site plans – “low, medium and high-use footprint”.
- c. Hold two public consultation sessions to inform the public about the management plan and get feedback on the alternative concept plans.

Phase 3 – Plan Drafting and Development (Oct 2007 – November 2008)

- a. Prepare draft versions, review with RDN staff and the Steering Committee, and revise.
- b. Distribute the draft Plan via the RDN website for review by other stakeholders.
- c. Compile comments; develop revisions and review with the Steering Committee and RDN staff.
- d. Finalize the Management Plan.

ERRPCA Plan Steering Committee:

S. Herle, RPTAC
J. Stanhope, RPTAC
J. Hope, TNT
T. Reid, TNT/DUC/NCC
J. Michel, RDN staff
W. Marshall, RDN staff

2.2. Inventory of Natural Values

As part of the development of this management plan, a preliminary inventory and assessment of natural resources was completed by LGL Limited in summer 2007. Using existing information and available ortho-images, the authors described the habitat types, existing flora and fauna, and species designated as at-risk (either provincially or federally) that do or could occur in the park. The authors completed field visits to the park in July and August 2007 to validate the habitat delineation; all flora and fauna observed during those field visits were recorded. The resulting “Inventory of Natural Values” (LGL Ltd., 2008) is attached as [Appendix A](#); major findings are summarized in Section 3.3 “Natural Values”.

2.3. Consultation

RDN Public Policy states that (a) the style of consultation must be inclusive; (b) opportunities for providing input and participating in consultation must be meaningful; (c) the process surrounding consultation must be

transparent; (d) presentations must be clear; (e) all input must be accurately and objectively recorded and interpreted; and (f) all public input provided must be made available for public review.

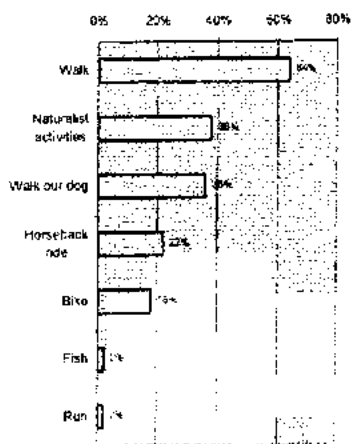
2.3.1 Stakeholder Contact

Appendix B lists the organizations, agencies and individuals that were contacted regarding their interests in the ERRPCA. Initial contact was made in August 2007 with subsequent communications in October 2007 to: inform about the management plan process; provide information on the public open houses; and distribute the user survey. A third contact was made in July 2008 to seek comments on the Draft Management Plan.

2.3.2 Public Meetings

Open houses were held on September 30th, 2007 (on site as part of BC Rivers Day) and October 17th, 2007 (at Oceanside Place in Parksville) to inform the public about the management plan and get feedback on three alternative concept plans - "low, medium and high-use footprint". These were attended by the general public as well as representatives from TNT, Community Fisheries Development Centre (CFDC), Englishman River Watershed Recovery Plan (ERWRP) Steering Committee, Mid-Vancouver Island Habitat Enhancement Society (MVIHES), British Columbia Conservation Foundation (BCCF), RPTAC, District 69 Recreation Commission, Area G Parks and Open Space Advisory Committee, Errington Fire Department, Arrowsmith Naturalists, and Parksville Streamkeepers.

The "low-use footprint" alternative was generally favoured by those attendees who filled out a question form (8) and those who participated in a short workshop at the October 17 event (18). Protecting wildlife corridors and maintaining the natural integrity of the area were key themes in their comments. Education about the park's natural features and the need to stay on trails was emphasized. There was considerable discussion regarding horseback access – whether more than one river crossing access point was necessary, and whether such access will be feasible in the long term (i.e., more than 5 years).



User Survey: favourite activities

2.3.3 User Survey

As part of the management planning process, a user survey was circulated in August 2007. A total of 45 responses were received; a summary of responses is included as Appendix C. Though too small to be statistically valid, this sample can still be considered a window on opinions of the public at large. Key results of the survey include:

- The majority of respondents were local, aged 45 and older and from families with no dependent children.
- Most respondents get to the ERRPCA by car, parking at (in order of times mentioned) Allsbrook Road, Top Bridge, and Middlegate Road.
- Favourite activities in the park included walking, dog walking and taking part in naturalist activities (see sidebar).

- The majority of respondents were generally satisfied with trails and facilities; a majority also indicated that they would like to learn more about the park's natural aspects.
- Most respondents stated that nothing limited their use of the park; a few noted limitations due to terrain, trail conditions, All Terrain Vehicle (ATV) use, the lack of signage and that horse use was discouraged.
- Interpretive signs, self guided tours and trail maps were among the most desired facilities in the park. There were also suggestions for more rest areas and signage, but otherwise, most respondents wished to see minimal changes, with the park staying as natural as possible.

2.3.4 Review of Draft Plan

In early July 2008, a draft version of the Management Plan was posted on the RDN's website, along with a questionnaire regarding the vision, goals and management policies of the Plan. All stakeholders were contacted by email to inform them of the availability of the draft Plan and requesting their input via the questionnaire or direct contact by September 30th.

Fourteen responses to the questionnaire were received, as well as correspondence from the Arrowsmith Water Service, BC Hydro, Terasen Gas, the Englishman River Watershed Recovery Plan Steering Committee and individual residents.

For the most part, reviewers generally agreed with the goals and policies presented in the draft Plan. Key themes in their comments included the following:

- Emphasis on the natural values of the ERRPCA, promoting conservation and restoration goals.
- Keeping facilities to a minimum: "people want wilderness areas, without all the frills and bows". Education and interpretive facilities should be kept low key; promotion of this park should not create demand for increased infrastructure.
- Maintaining access to and through the park for horseback riders.
- Concern with the future presence of a water intake facility, including the potential impact of the additional water withdrawal on the integrity of the aquatic and riparian values within the ERRPCA.

Several corrections and additional ideas were also garnered from these comments and incorporated in revisions to generate the final Plan.

3.0 Context for the ERRPCA

Key Legal & Policy Documents

99-year lease between RDN and TNT/DUC

25-year lease between RDN and the Province

Section 219 Covenant

Statutory right of way (SRW) to RDN for future waterworks

SRW to BC Hydro and Terasen Gas for utilities

RDN Park Use Regulations Bylaw No. 1399 (2004)

RDN Regional Parks and Trails Plan 2005-2015

3.1. Land Status

3.1.1 Governing Leases and Encumbrances

ERRPCA was subdivided into two lots to accommodate the Province's contribution to the acquisition (see Figure 1.2). The 34-hectare western lot (20% of the park) legally described as Lot 1, Block 602, Nanoose District Plan, VIP76721, is owned by the Province as represented by the Ministry of the Environment (MOE). Encumbrances on this property include:

- A 25-year renewable lease to the RDN concluded in 2004, for the purposes of managing the property as part of a Regional Park.
- A Section 219 Restrictive Covenant over lands located within 30 meters of the natural boundary of the Englishman River for conservation of riparian and aquatic habitat.

The 173-hectare eastern lot (80% of the park) legally described as Block 602, Nanoose District, Except Part in Plan VIP76721, is owned by TNT, DUC and the NCC. Encumbrances on this property include:

- A 99-year lease to the RDN concluded in 2006, for the purposes of managing the property as part of a regional park.
- Statutory Rights of Way (SRW) to BC Hydro and Terasen Gas within the utility corridor.

Both properties are subject to a SRW, registered by the RDN, for potential domestic water intake works by the Arrowsmith Water Service (AWS). These works could include water storage and treatment facilities, water distribution lines and a private access road.

The two leases outline conditions for management of the park. In short, the RDN must ensure that development, management and operations are compatible with the conservation aims of the landowners including the preservation of the forest ecosystem, fish and wildlife habitats.

As referenced in the RDN's 99-year lease with TNT and DUC, the operation and maintenance of the hatchery and channel system is the responsibility of Fisheries and Oceans Canada (DFO). The RDN will conclude an operating agreement with DFO in tandem with the production of this management plan.

3.1.2 Neighbouring Lands

A variety of conservation and other park lands are adjacent to the park, including (Figure 3.1):

- The RDN's Top Bridge Community Park and City of Parksville's Top Bridge Park to the northeast;
- Block 564 conservation lands on the south side of the river, owned by TNT;

- Conservation covenanted land owned by Timber West on the south side of the river, southwest of the park; and
- Crown lands designated as part of the Parksville-Qualicum Beach Wildlife Management Area (P-QB WMA) at the outlet of Morison Creek, on the southwest boundary.

The western boundary is adjacent to a public road right-of-way. Private forest, agricultural and rural lands lie along the north boundary.

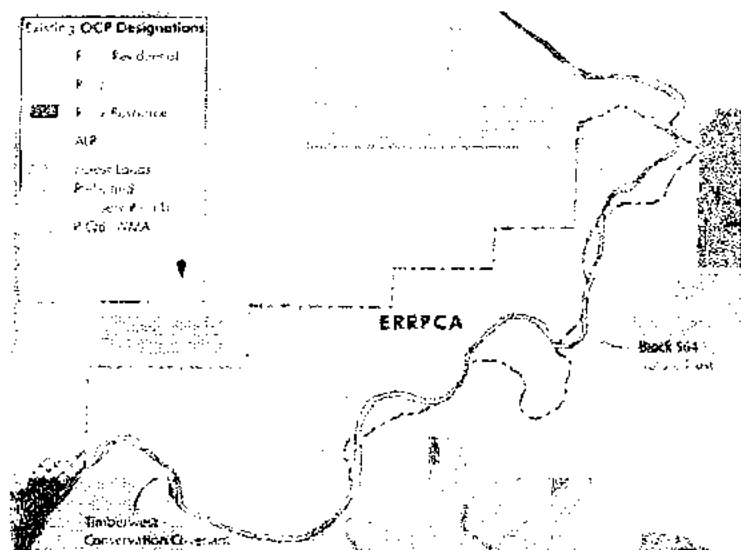


Figure 3.1 Lands adjacent to the ERRPCA

3.1.3 Services

There is a gravel access road (the “park road”) into the property. There are no on-site electrical services; the nearest connections to the power grid are at Middlegate Road and Allisbrook Road.

The ERRPCA lies within the Errington fire protection boundary. Coverage is provided by Errington’s volunteer fire department, which operates under a Mutual Aid Agreement with its neighbouring fire departments. Under the Errington Community Wildfire Protection Plan (2006), the Wildland Fire Service of the Ministry of Forests will assist fire suppression efforts where wildfire threatens forest or other wild land values, regardless of ownership.

3.1.4 Land Use Regulations

The ERRPCA lies within the area covered by the current Englishman River Official Community Plan (OCP - RDN Bylaw 814). Goals of the existing OCP that relate to the park include:

- To preserve and manage natural and cultural resources for the enjoyment and prosperity of area residents;
- To preserve productive, sensitive and unique ecosystems including fish and wildlife habitat and the marine environment; and
- To protect and conserve archaeological sites.

This OCP document is currently under review and will be consolidated into one OCP for Area G in its entirety in 2008-2009.

The RDN Regional Parks and Trails Plan 2005-2015 sets out the future direction, policies, priorities and actions for regional parks and trails. The vision outlined in this plan is for a system that protects and stewards natural values while providing rewarding recreational opportunities, fostering education and appreciation of the natural environment and enhancing the livability of the Region.

The RDN Park Use Regulations Bylaw No. 1399 (2004) regulates park use in community and regional parks. This bylaw limits park use to non-motorized activities (walking, cycling and horseback riding). The ERRPCA is listed as a Level 4 Park – “Undeveloped Park, Trail and other Open Space”. Park Use Permits are issued under this bylaw for such activities as commercial recreation services, special events and research activity.

3.2. Conservation Context

The ERRPCA has the potential to mature into an old-growth forest representative of the Coastal Douglas Fir (CDF) biogeoclimatic zone. Undisturbed examples of this type of forest ecosystem are dwindling on the east coast of Vancouver Island, which increases the long-term conservation value of this park. Even in its current state, the ERRPCA contains a variety of habitats that contribute to a rich biodiversity.

3.2.1 Conservation Lands

The ERRPCA is also a strategic component of the Englishman River conservation corridor, a 20-km long system of protected land and water running from the Englishman River Falls Provincial Park to the estuary (Figure 3.2). Given its significance for fish and wildlife habitat, the Englishman River corridor has been the target of numerous conservation initiatives over the past 25 years:

- Between 1981 and 1993, TNT and the Pacific Estuary Conservation Program acquired over 76 hectares of land in the Englishman River estuary. This land was leased to the Province to form part of the PQ-WMA (see Section 3.2.2).
- In 2003, TNT purchased 100 ha of riparian land in Block 564 - on the south side of the river directly opposite the ERRPCA - from the Englishman River Land Corporation for less than 15% of its fair market value. The Land Corporation eco-gifted the difference between the market value and purchase price to TNT.
- At the same time, Weyerhaeuser donated the remaining timber and gravel rights that it held on the entire area (334 ha) of Block 564 to TNT, another form of eco-gifting that helped to protect these ecologically sensitive lands.
- In 2005, TimberWest donated an 8-hectare conservation covenant on riparian land located on the south side of the river to TNT. This site



Backwater on south side of Englishman River

also lies on the south side of the river opposite the ERRPCA, covering some 1.3 km of riverbank.

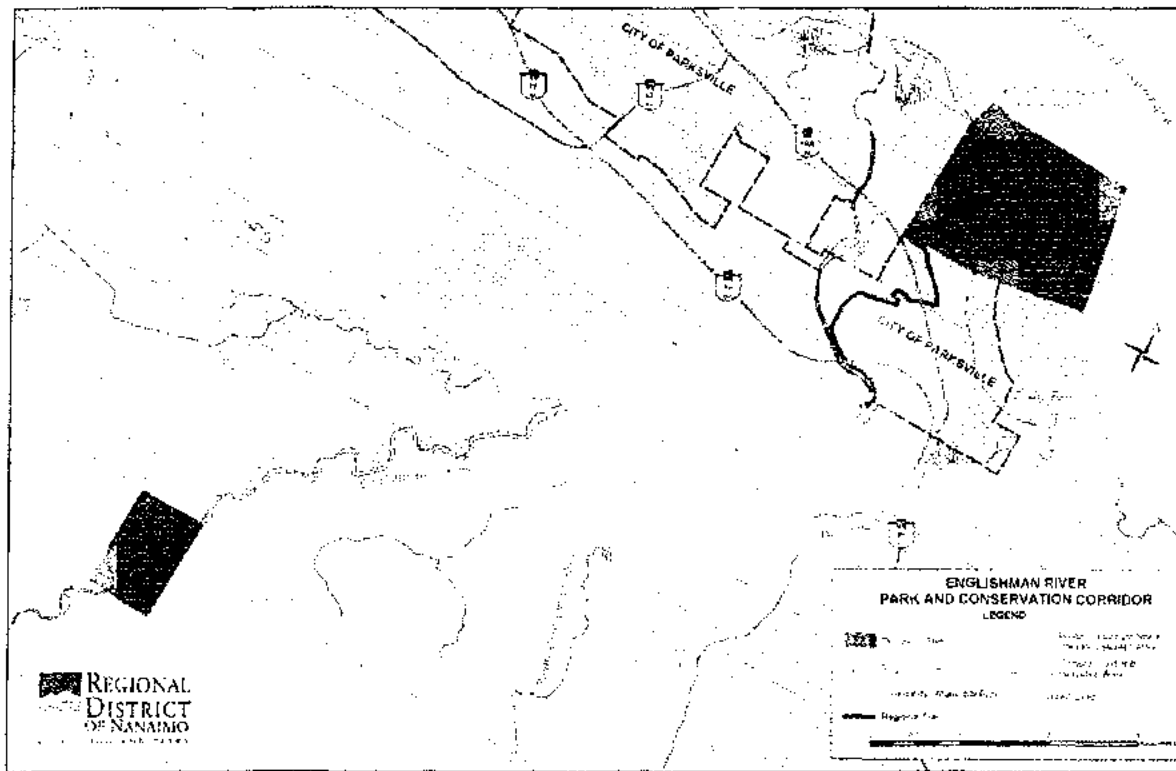


Figure 3.2 Englishman River Conservation Corridor

3.2.2 Parksville-Qualicum Beach Wildlife Management Area

Wildlife Management Areas (WMA) are designated under Section 4 of the B.C. Wildlife Act as areas where conservation and management of wildlife, fish and their habitats are the priority land uses, but where other uses may be permitted depending on their compatibility with WMA goals. The MOE is responsible for administering and managing WMAs.

The ERRPCA lies adjacent to the P-QB WMA, established in April 1993. The original designation encompassed 873-ha (2,156 acre) of Crown and TNT lands over 17 kilometres of coastal foreshore and estuarine habitat, from Craig Bay to the little Qualicum River estuary. In 2001, Crown lands along the Englishman River and the lower 5 km of Morison Creek were included in the WMA, adding 151 ha (373 acres) of Crown-owned riverbed and riparian area and creating a 14-km corridor from Englishman River Provincial Park to the estuary.

The purpose of the P-QB WMA is to protect and manage the marine, estuarine and river habitat critical to fish and wildlife populations in the area. A Management Plan was first issued in 1996, and updated in 2003, to provide guidance regarding habitat protection and restoration

and to allow for wildlife viewing and other compatible activities within the WMA,

3.2.3 Englishman River Watershed Recovery Planning

The Englishman River has been identified as one of the most important salmon-producing rivers on Vancouver Island. In 2001, the Englishman was one of seven watersheds initially chosen for a Watershed Recovery Plan under the Pacific Salmon Endowment Fund (PSEF). The federal government established this \$30 million fund as the first long-term funding mechanism dedicated to achieving sustainable salmon stocks in British Columbia and the Yukon.

Under the supervision of the ERWRP Steering Committee and its Technical Advisory Committee, rehabilitation activities were undertaken to:

- Improve refuge and instream cover by installing large woody debris (LWD), groins, debris catchers and boulder clusters;
- Stabilize banks and improve access for juveniles and adults;
- Monitor water flows and water quality to develop strategies for improved low flow water management.

Although the PSEF has completed its major funding for the Englishman, the ERWRP Steering Committee has been continuing the initiatives under the Recovery Plan in partnership with DFO, BCCF, CFDC, MOE, TNT, RDN and several local stewardship groups.



LWD installed on Englishman River

3.3. Natural Values

The following highlights the main findings from the “Inventory of Natural Values” (LGL Ltd., 2008) attached as [Appendix A](#).

3.3.1 Terrestrial Habitat

The ERRPCA lies within the Moist Maritime subzone of the Coastal Douglas-fir biogeoclimatic zone (CDFmm) - one of the smallest ecological zones in BC, comprising only 5% of the total land area, and home to some of the province’s rarest plant communities. Almost all forests within the park are regenerating following extensive logging since the turn of the last century. Left in an undisturbed state, these areas will mature into old growth forests, an increasingly rare habitat on Vancouver Island.

The “Inventory of Natural Resources” identifies and maps 12 habitat types in the ERRPCA (see Figure 2, page 8 - Appendix A), listed in Table 3.1.¹

¹ The final topographic survey of the C.W. Young Channel extension (2007) was not complete at the time the habitat types were delineated. Hence, the area occupied by the new side channel could not be established and the additional riverine and riparian habitats represented by the new channel could not be taken into account in the habitat assessment in Table 3.1. Future versions of this plan should incorporate the area of side channel habitat now that the total area and alignment of the wetted channel can be determined.

Code	Habitat Type	Hectares	% Park Area	Sensitivity to human activity
DMF	Dry Mixed Forest	62.9	30.4%	Moderate
MMF	Moist Mixed Forest	45.3	21.9%	High
SCF	Mesic 2nd-growth Coniferous Forest	33.8	16.3%	Moderate
RC	Regenerating Cutblock	25.7	12.4%	Low
RF	Riverine Flat	10.4	5.0%	High
RI	River	9.2	4.4%	High
DS	Disturbed site	6.8	3.3%	Low
DPF	Dry Pine Forest	4.2	2.0%	Moderate
RT	Riparian Thicket	4.0	1.9%	High
SP	Swamps and Ponds	3.7	1.8%	High
FC	Forest Clearing	1.1	0.5%	Moderate
EP	Ephemeral Pool	0.1	0.05%	High
	Total	207.2	100%	

Table 3.1 Habitat types delineated in ERRPCA (from Appendix A)

The habitats were also assessed with respect to their sensitivity to disturbance and damage by human activities. The ratings reflect a qualitative assessment of the potential for permanent damage to vegetation and/or habitat values from human activities (walking, running, cycling, dog-walking, horse-back riding). Habitats with the highest sensitivity are typically associated with aquatic habitats and with moist conditions where soils are easily compacted. Although some of these habitats are not currently accessible to park users, there is the potential for damage to arise from any future trail development and off-trail use.

3.3.2 Sensitive Ecosystems and Species at Risk

Under the federal-provincial Sensitive Ecosystem Inventory for Southeast Vancouver Island (1997), the only sites identified within ERRPCA are wetland areas that have been incorporated into the newly extended side channel, and riparian vegetation sites along the Englishman River mainstem.

A variety of flora and fauna were observed in the ERRPCA in the 2007 survey (see appendices A-F of Appendix A). Eight species considered to be at risk provincially or federally are known to occur, and an additional 26 at-risk species probably or possibly occur in the ERRPCA (Table 3.2).

3.3.3 River Habitat

The Englishman River originates on the slopes of Mt. Arrowsmith and Mount Moriarty on Vancouver Island, and flows 40 kms in an easterly direction before entering the Strait of Georgia east of Parksville Bay.

Since the 1980s, the Englishman River has been recognized as one of the most valuable but also most endangered rivers in the province. The river supports all species of salmon. Chum is the dominant species followed by Coho; Chinook, Pink and Sockeye are also present along with Steelhead and Cutthroat trout. Resident game species include Dolly Varden and Rainbow trout.

Species	Provincial Status*	Species	Provincial Status*
<i>Confirmed to occur in ERRPCA:</i>			
Common Wood-nymph, <i>incana</i> ssp.	Red	Red-legged Frog	Blue
Roosevelt Elk	Blue	Cutthroat Trout	Blue
Band-tailed Pigeon	Blue	Dolly Varden	Blue
Purple Martin	Blue	Pacific Sideband (mollusc)	Blue
<i>Probably occur in ERRPCA:</i>			
Vancouver Island Water Shrew	Red	Western Screech-Owl, <i>kennicottii</i> ssp.**	Blue
Townsend's Big-eared Bat	Blue	Northern Pygmy-Owl, <i>swarthi</i> ssp.	Blue
Great Blue Heron, <i>fannini</i> ssp.**	Blue	Barn Swallow	Blue
Northern Goshawk, <i>jaingii</i> ssp.	Blue	Western Pine Elf, <i>sheltonensis</i> ssp.	Blue
Peregrine Falcon, <i>pealei</i> ssp.**	Blue	Western Toad**	Yellow
Sandhill Crane	Blue		
<i>Possibly occur in ERRPCA:</i>			
Peregrine Falcon, <i>anatum</i> ssp.	Red	Western Pondhawk (dragonfly)	Blue
Evening Fieldslug (mollusc)	Red	Blue Dasher (dragonfly)	Blue
Threaded Vertigo (mollusc)	Red	Autumn Meadowhawk (dragonfly)	Blue
Pacific Vertigo (mollusc)	Red	Western Thorn (mollusc)	Blue
Vancouver Island Ermine	Blue	Broadwhorl Tightcoil (mollusc)	Blue
Green Heron	Blue	Scarletback Taildropper (mollusc)	Blue
Canada Goose, <i>occidentalis</i> ssp.	Blue	Black Gloss (mollusc)	Blue
Pine Grosbeak, <i>caroliniae</i> ssp.	Blue		

Table 3.2 Species at risk in the ERRPCA – see Appendix A for details.

*Provincial CDC ratings: Red – endangered, extinct, extirpated or candidate for such; Blue – particularly sensitive to human activities or natural events; Yellow – uncommon or declining but not candidate for Red or Blue list.

**COSEWIC “Special Concern” – may become threatened or endangered due to a combination of biological characteristics and identified threats.

The anadromous section extends up to Englishman River Falls, some 16 km from the mouth. The mainstem section within the ERRPCA is a primary spawning and rearing area in the Englishman River system (see Figure 5, Page 28 - Appendix A), and as discussed above in Section 3.2.3, has been a focus for restoration efforts over the last decade.

Side channel construction: In the 1990’s, two artificial side-channels – 1300 m on the north side and 950 m on the south side – were constructed by DFO with support of MacMillan Bloedel and TimberWest to increase rearing habitat for juvenile coho salmon. The C.W. Young Channel (north side) was lengthened in 2007, bringing the total length of constructed side-channel habitat in the system to some 4400 meters. Both of these channels are located within the ERRPCA (see Figure 5, Page 28 – Appendix A).

Instream structures: Since 2003, over 35 LWD and rock groin structures have been constructed by BCCF at two meander bends within ERRPCA (see Figure 11, Page 33 - Appendix A).

River condition: The section of the river mainstem bordering ERRPCA has shown the most channel migration over the last 50 years (see Figure 4, page 26 - Appendix A) and is considered to be over-widened due to natural as well as human influences such as logging further upstream. Large flood events in 1980-1983 and 1990 likely resulted in channel widening and destabilization, riparian damage, infilling with fine sediments, and large-scale reduction in LWD. Although it is showing signs of recovery in some reaches (evidenced by re-vegetation of the gravel bars), bank erosion and lateral channel migration along with poor pool-riffle development continues to plague the river.



CW Young Channel, new section 2007

3.3.4 Invasive Species

The majority of invasive species found at ERRPCA are in those areas identified as regenerating cutblock and disturbed sites. There is some invasive plant growth in other areas of the park - e.g., Scotch broom in the gravel pit site and on the riverine flats; Green frogs were found in some wetland areas and along the banks of the river mainstem.

3.4. Recreation Values

3.4.1 Local Trends

Several trends have implications on the demand for and nature of recreational activities that may be sought in the ERRPCA.

Population growth and demographic: For the 2001-2006 census period, the RDN had the highest rate of population growth among Vancouver Island regional districts at 9.1% (average 1.8%/year). Within the "Oceanside" area (the region comprised of Electoral Areas E to H, Parksville and Qualicum Beach), the growth rate was even higher at 11.6% (Statistics Canada, 2006). Furthermore, Oceanside is popular with retirees. At 28%, the proportion of Oceanside residents 65 or older is almost twice as high as the BC average of 14.6%.

Tourism: People come to visit Vancouver Island for its natural beauty and to participate in the outdoor recreation opportunities that abound. In a recent Vancouver Island Tourism study, 'scenic beauty' was the highest ranked feature of importance. Parks were ranked the top tourism attraction in the central Vancouver Island region with key activities being hiking and wildlife viewing.

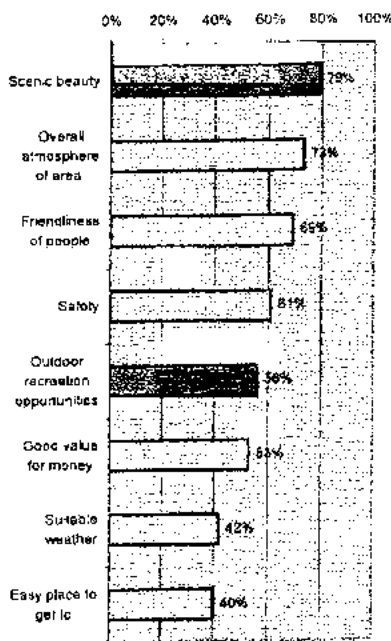
Recreation: The Recreation Services Master Plan for Oceanside (RDN, 2006) identifies several trends that are relevant to the ERRPCA:

- **Passive Recreation Preferences:** an increase in "individualized and informal" activities as opposed to formal, organized sports; increased demand for more access to outdoor recreation – more trails, less

playing fields. Favourite activities for both youth and adults are walking and cycling.

- *Environmental Education*: people are seeking meaningful experiences in their activities; interest in stewardship, natural history and environmental education is growing.
- *Volunteerism*: the volunteer rate is currently down, but the expectation is for an increase in volunteers once baby boomers retire; volunteer tasks include trail building and invasive species removal days.
- *“Barrier free”*: increased demand by people with disabilities to participate in outdoor recreation.

The RDN is also a participant in Active Communities, a provincial initiative that “promotes and supports, through a coordinated strategy, a way of life in which physical activity is valued and integrated into daily life” (BC Recreation and Parks Association, 2005). The goal is to work with local governments and partner organizations to undertake actions that promote healthy lifestyles, build healthy communities and increase physical activity levels amongst British Columbians by 20% by the year 2010.



Features that attract visitors to Vancouver Island (Tourism Vancouver Island, 2007)

3.4.2 Current Use of ERRPCA

ERRPCA has a long history of informal recreation use, including hiking, cycling, ATV use and horseback riding, and there is a web of established trails within the park. The user survey and stakeholder contact identified the following trends and activities:

- The park is very popular among local residents for walking/hiking, dog-walking and to a lesser extent running.
- Several local organizations use the park for regular activities and special events. Examples include monthly walks from Allsbrook to the park hatchery by members of the Mid-Island Volkssport Club and club rides by members of the Silver Spur Riding Club.
- Horseback riders use the ERRPCA trails as part of a larger trail ride from Craig Bay to Little Mountain and beyond.
- Despite the presence of gates and other barriers at park entrances and roads, ATVs and motorbikes are still prevalent though declining, due in part to their long history of use of the site.
- Top Bridge Park is a known ‘party spot’ for local teenagers and there is evidence of these parties along the river close to Top Bridge Crossing and at the Clay Banks site (i.e. fire rings, refuse).
- The Englishman River is popular among sport fishers. The section of the Englishman River bordering ERRPCA is open to sports fishing from June 1 to November 30. All regulations specific to Region 1 Vancouver Island apply, with the exception that wild cutthroat must be released at all times.
- Special events that have occurred in the ERRPCA include BC Rivers Day celebrations, the Bob Pruess Memorial Trail Ride against Cancer, and the Brant Wildlife Festival.

3.4.3 Existing Conditions and Park Access

Figure 3.3 shows the existing points of access, trails and facilities in the ERRPCA.

Previous logging operations along with informal recreational use have created about 13 kilometres of trail and road within the ERRPCA. A public outhouse is located next to the hatchery buildings. Picnic tables and benches have been constructed at various locations, including four new benches constructed in 2007 by CFDC crews. Some of these amenities, however, are located in areas of winter high water levels and are subject to damage from flooding. [Appendix D](#) includes a photo inventory of the trails and constructed features currently found at ERRPCA.

Current access points include:

- Allsbrook Road: This is the only vehicle access into the park restricted by a locked gate. Groups and agencies with an interest in the park have keys; the gate is opened for special public events. Roadside parking is available; a parking lot is also located behind a second gate along the access road to Top Bridge.
- Top Bridge Trail and crossing: The footbridge provides pedestrian and bicycle access; there is a parking lot on the Community Park (south) side of the river.
- Middlegate Road: Concrete blocks and boulders block vehicle access but ATVs and motorbikes have succeeded in getting around these barriers in the past. There is limited parking within the road right-of-way; the 25-year lease with the Province specifies development of a small parking area.
- Morison Creek: An informal trail runs within the P-QB WMA adjacent to the river and crosses over Morison Creek and into ERRPCA.
- North Utility Right-of-Way: An informal trail runs north from the park road through the utility right of way, to privately held lands. This trail forms part of an informal loop from the Middlegate Entrance.
- Rivers Edge Loop: As part of the River's Edge subdivision plan, there is a looped trail system on the south side of the river from which horseback riders cross the river into ERRPCA.



Bench on Stee head Trail



Top Bridge Crossing - a key link in the regional trail network.

3.4.4 RDN Regional Trail System

The RDN manages over 60 km of trail in the Regional Trail System. The ERRPCA forms an integral part of the system, providing an important link between the southern and northern portion of the regional district.

A key piece of that link is the Top Bridge Crossing, which was officially opened on BC Rivers Day in September 2007. The suspension bridge crossing connects the ERRPCA to the RDN's and the City of Parksville's Top Bridge community parks, as well as to the Top Bridge trail that runs north to Rathtrevor Provincial Park.

Future expansions of the regional trail network will connect Top Bridge to all the major parks and trails in the RDN, including Englishman River Falls Provincial Park and the Trans-Canada Trail.

3.5. Resource Values and Other Land Uses

3.5.1 Forestry

The majority of forests within the CDF were extensively logged at the turn of the century due to the value of Douglas fir timber. Forests in the area around ERRPCA were logged as part of the World War II war effort by the Robert Dollar Company and save for a few small areas of recent activity, have been regenerating since that time.

A conservation evaluation of Block 602 was conducted in 2001 for TimberWest (Buechert, 2001). Key points from this report include:

- There are a few areas of older forest including the knoll near Allsbrook Road, a section of the riverbank near Morison Creek and a section along River Trail, just east of the Clay Banks. Trees in these areas are close to 100 years old.
- There are also areas that were cut only 8-10 years ago – such as near the Middlegate entrance and along the park road east of the utility right-of-way. These areas account for approximately 25% of the park.
- The majority of the remaining forested lands are comprised of timber dating 25-70 years old.

As discussed in Appendix A, if left alone, the mature forest and younger, regenerating forest types will follow a predictable succession in forest age and composition. In the absence of restoration or natural disturbance such as fire, major wind throw or major channel migration, “the majority of the ERRPCA would be mature forest in 20- 50 years from present. In 100 years, most of the park would be classified as old-growth.”

3.5.2 Gravel Pit

The 4-ha gravel pit is located on the north side of the park road in the western portion of the park. Haylock Brothers Paving of Qualicum Beach holds the permit issued under the Mining Act to operate the gravel pit, and extracted sand and gravel from 2001 to 2004 until it suspended operation in 2005. Under its permit, Haylock is responsible for reclamation of the pit site, and are awaiting input from the RDN as to the desired end use conditions before completing reclamation.

General reclamation requirements are set out under Part 10.7 of the BC *Health, Safety and Reclamation Code* under the *Mines Act*. Until such time as reclamation is completed to the satisfaction of the provincial Inspector of Mines and the Inspector closes the permit, Haylock remains responsible and liable for use of the pit and its structures.² In its present condition, the gravel pit does not represent a public safety hazard, as there are no steep slopes, culverts or other infrastructure present.

For its part, the RDN is obliged under the lease with TNT and DUC to “eliminate the potential for further commercial mining of the gravel pit but



8-10 year old forest



Aerial view of existing gravel pit



The gravel pit

² J. Webster, Office of the Inspector of Mines, Victoria, December 2007: pers. comm.

allow for minor extraction by the Lessee in order to maintain and develop trail and road works on the Lands and Adjacent Lands” (clause 11c).

There are some remnant ephemeral pools within the gravel pit suggesting that this part of the gravel pit is a natural collector of runoff from the surrounding area.

3.5.3 Potential Waterworks

The Arrowsmith Water Service (AWS), a joint venture of the RDN, City of Parksville and Town of Qualicum Beach, is examining options for securing a water intake in the vicinity. Works could include water storage and treatment facilities, water distribution lines and a private access road.

There are blanket Statutory Rights of Way over both portions of Block 602 for these potential works. No detailed design has been done to date beyond identifying ERRPCA as a potential location for an intake near the confluence of the South Englishman River and establishing an approximate footprint of 7 hectares. AWS expects to have a facility designed by 2010 with a new facility operating by 2013.

The AWS does not have a position regarding limited recreational use in the Englishman River watershed; the administration sees it as an active watershed and facilities would be designed accordingly. However, there could be concern regarding increased levels of activity in the immediate vicinity of existing or future water intakes.

3.5.4 Utility Rights of Way

BC Hydro and Terasen Gas hold rights-of-way (ROW) through the park to install, replace, maintain and access their works. The 18m wide utility corridor within ERRPCA is approximately 800m long, comprising an area of 1.4 hectares (Figure 3.3). While BC Hydro retains the legal tenure of their portion of the ROW, BC Transmission Corporation (BCTC) is responsible for operating, planning and maintaining the system.

Within utility ROWs, landowners retain rights to use the area for activities that do not threaten or interfere with the utilities and access to them. All activities within a utility ROW require prior approval by BC Hydro and Terasen Gas. Preliminary discussions with BC Hydro and BCTC indicate that there would be no action required to use a portion of the access road as a part of a park trail. Terasen Gas, however, would like to be part of any planning for trails within or crossing the ROW. They also indicated that they would be open to discussions regarding gated access.

Both BC Hydro and Terasen Gas permit small-scale tree farms or Christmas tree operations within their rights-of-way; use permits are required.



Signage installed by BCCF highlighting the Steelhead Recovery Plan

3.6. Research and Education Values

As indicated in Section 3.2.3, a variety of organizations have conducted research on fish populations and habitat in the Englishman River.

Interpretive and educational activities within ERRPCA have also been focused primarily on fisheries resources. For example:

- An interpretive sign was installed by BCCF as part of the Steelhead Recovery Plan at the Long Run.
- Information about salmon runs and wildlife brochures are posted periodically at a bulletin board at the hatchery site.
- School groups and community organizations occasionally visit on field trips, though these events appear to rely on individuals already involved in some way with restoration activities on the River.

MVIHES has worked in various ways to raise public awareness of the Englishman River watershed. Its activities included sponsoring streamkeeper education programs, public workshops and seminars on local environmental topics, landowner contact, and business stewardship awards. A primary outreach vehicle was the "Englishman Patient" newsletter. Where these programs have a field component (e.g., streamkeepers courses, Rivers Day events, youth programs), MVIHES has used the ERRPCA as well as other local natural areas (e.g., Morison Creek, Grandon Creek, Englishman River estuary).



Bulletin board at hatchery

3.7. Historical Values

There is one registered archeological site, a First Nations midden, within the park property and three other sites in the surrounding area. The site is within the conservation zone on the north side of the Park Road; there are no trails in this area, hence the likelihood of disturbance by human activity is very small. The Nanoose First Nation have keys to the park gate to allow access to sites of heritage interest.

Little is known of the historical use of the park properties, other than for forestry purposes and more recently for gravel extraction; this may be of interest for future research and interpretation.

3.8. 'Sense of Place'

The public survey results, albeit limited, suggest that the ERRPCA is well known on a local (Oceanside) basis but not much farther afield; over 90% of respondents were from the Oceanside and immediate areas. Even within that cohort, there may be some confusion in identifying the ERRPCA from Englishman River Falls Provincial Park (e.g., reference to park fees in user survey comments). The park has an identity mostly among local streamkeepers and fishermen, walkers, horseback riders and immediate neighbours.

However, this limited profile may change soon. The recent designation as a regional park, opening of the Top Bridge Crossing, forthcoming revisions to trail guides for Vancouver Island (e.g., the Mussio Ventures Backroad Mapbook has been released in digital format) and ongoing publicizing of the RDN's regional parks and trail system will broaden the awareness and hence the use of the ERRPCA.

4.0 Issues Summary

The overarching management issue in the ERRPCA is achieving environmental protection while still allowing appropriate recreational use. Striking this balance is not a new conundrum in park management, but the conservation mandate of this particular park and its property owners places a heavier onus on environmental protection than in most other parks in the RDN system.

The responses received from the user survey and the discussions at the open houses reflected a desire on the part of the park's users to achieve this balance. There was a general preference to minimize the human use footprint, and to focus on habitat protection and enhancement. Conflicts between conservation and recreation interests were evident, particularly with respect to horse crossings through the river. An interpretive component was supported in the form of self-guided trails but there was less appetite for 'hard' facilities (e.g., a nature centre).

Along with the need for an appropriate balance of environment and recreation, a number of more specific management issues arose through the course of the development of this plan:

- ❑ **Habitat management, monitoring and enhancement:** Identifying inventory, monitoring and enhancement priorities and cost-effective strategies, and finding the financial and human resources to support these activities.
- ❑ **Recreational trails and amenity development:** Removing or relocating trails in sensitive habitats; placement and construction of park amenities; development of interpretive programs that highlight the natural values of the property.
- ❑ **Park access:** Managing parking areas and trail accesses at Allsbrook and Middlegate Roads; providing for emergency access; locating and designing routes to access LWD structures for maintenance and monitoring that may or may not be public trails.
- ❑ **Unauthorized use by motorized vehicles:** How to limit access by ATVs and motorcycles effectively; working with organizations representing these users to resolve problems.
- ❑ **User conflicts:** Providing for different users while maintaining a wilderness experience; identifying effective ways to influence user behaviour.
- ❑ **Horse crossings on the river:** Managing the potential impacts of horse passage on fish habitat (streambed) and water quality; reducing the many routes that have been randomly used down to one or two well-defined routes that are agreeable to the local horseback riders; considering a future out-of-stream crossing when drinking water facilities are expanded in the park, to avoid potential contamination.
- ❑ **Interfaces with neighbouring lands:** Managing use and access at the P-QB WMA interface at the west end of park and onto



Horses crossing at Top Bridge

neighbouring TNT lands; other informal trails onto private neighbouring private properties.

- ❑ **Park profile:** The Park is little known outside the immediate area; how to enhance awareness of ERRPCA; to what extent and how should the Park be promoted as a tourism destination.
- ❑ **Gravel pit:** Completion of required decommissioning and reclamation of the site; determining appropriate future use.
- ❑ **Vandalism and inappropriate use:** Dealing effectively with vandalism, littering, defacement and other inappropriate activities, particularly around the Top Bridge Crossing area.
- ❑ **Future water services:** Size, location, land use requirements and timing for expansion of water service facilities within the Park by the AWS.
- ❑ **On-site staffing:** Defining staffing needs, sources and funding.

The identification of these issues informed the development of goals and policies needed to manage the ERRPCA over the next 5-10 years.

5.0 Vision, Principles and Goals

5.1. Vision

As part of the Englishman River conservation corridor, the ERRPCA is a place where ecological functions are preserved, where fish and wildlife habitats are actively protected and enhanced, and where people can experience healthy ecosystems in ways that do not threaten their integrity.

This vision reflects the underlying goal to strike a balance between environmental protection and sustainable human use in the ERRPCA. The park forms part of a larger conservation effort represented by TNT's conservation initiatives, the P-QB WMA, and the ERWRP described in section 3.2. Management decisions in the ERRPCA will work in concert with these initiatives. Conservation will be balanced with passive recreation - hiking, wildlife viewing, fishing and some amount of bicycling and horseback riding - and education about the area's natural history.



Englishman River

5.2. Principles

The leases and covenant discussed in Section 3.1.1 provide the basic principles to be reflected in the management of the ERRPCA:

- a) Management, operations and future development in the Park shall be compatible with the conservation objectives of the landowners and conservation partners TNT and DUC, including but not limited to the preservation of the forest ecosystem, fish and wildlife habitats.
- b) The statutory rights of way for domestic water (AWS) and utilities (BC Hydro and Terasen Gas) must also be respected.
- c) The operation and maintenance of the hatchery and fisheries channels are the responsibility of DFO. The RDN will conclude an operating agreement with DFO in tandem with the production of this management plan.

5.3. Management Goals

The following goals form the framework for policies and management actions in the ERRPCA.

1. **Cooperative Management:** To work with partnering agencies, community stewardship and recreational groups, educational institutions, neighbouring residents and the public to effectively manage the ERRPCA to meet the management goals.
2. **Environmental Conservation:** To protect and conserve the long-term ecological integrity of aquatic and terrestrial habitats within the ERRPCA and as a component of the greater Englishman River conservation corridor.

3. **Recreation:** To ensure that recreational uses in the ERRPCA are sensitive to the environment, have minimal negative impact on its ecological assets and contribute positively to the quality of life in the Regional District.
4. **Education and Interpretation:** To encourage and develop educational and interpretive opportunities to enrich the public's experience of the ERRPCA, and to enhance an appreciation and foster stewardship of its natural assets.
5. **Public Safety and Park Security:** To provide a safe area where natural and man-made hazards are minimized and neighbouring private property is respected.

6.0 Management Policies

The following policies reflect the order and major themes of the Management Principles and Goals for the ERRPCA:

- Given the multi-party ownership of the ERRPCA, **management must be cooperative** in nature and respect the conservation mandates of the landowners;
- Park zoning and management activities must strive for a sustainable balance between **environmental conservation and recreational use**;
- **Education and interpretation** of local natural and cultural history are key roles of the ERRPCA; and
- **Public safety and security** are underlying responsibilities of park management.



Viewing platform at rearing ponds

It is also important to note that the RDN's Regional Parks and Trails Plan 2005-2015 contains many policies of general application that are directly pertinent to the ERRPCA. As such, similar policies are not repeated in this Plan. Of particular note to the ERRPCA are general policies relating to the following (references to the applicable section of the Regional Parks and Trails Plan are noted):

- **Facilities and improvements:** Principles from *Develop with Care: Environmental Guidelines for Urban and Rural Land Development in BC* (MOE, 2006)¹ will be applied in planning facilities and managing operations in the ERRPCA (sec. 10.2). Park facilities and improvements will optimize public safety, reduce exposure to liability, and enhance public awareness of the sensitive nature of environmental features and natural hazards (sec. 10.3). A 'strategic' approach to improvements will be used that reflects level of use, minimize maintenance requirements and offers resistance to vandalism (sec. 10.7).
- **Barrier free access:** The RDN will endeavor to provide barrier free access in high use areas, recognizing the limits of topography, costs, and environmental/ cultural/historic sensitivity (sec. 10.8).
- **Groups and special events:** The RDN will regulate inappropriate behaviour and damaging activities through the Park Use Bylaw 1399 (sec. 10.5). Under this Bylaw, the RDN may allow for the use of the Park or its trails by groups for special events provided that the use is compatible with the purpose and management of the park/trail, and the group accepts full responsibility for maintaining the site and restoring the existing conditions of the site during and after the event (sec. 10.10). The timing of special events in the ERRPCA shall take fisheries windows into consideration, to avoid habitat

¹ This document replaced *Environmental Best Management Practices for Urban and Rural Land Development in BC* (MVF/LAP, 2004).

disturbance while still taking advantage of opportunities to view fish migration.

6.1. Cooperative Management

6.1.1 Management structure: Establish management and advisory committee to oversee the management of the park.

As outlined in the management leases, a two-part management structure is anticipated:

- a. A Park Management Steering Committee chaired by the RDN with representation from TNT and DUC; MOE will participate at its discretion. The role of the steering committee is:
 - To review the status of Management Plan actions at least annually;
 - To reconfirm general management and conservation directions as needed; and
 - To review the Management Plan updates prepared by the RDN every five years.
- b. A Fish and Conservation Advisory Committee chaired by TNT and comprised of the RDN, DFO, MOE, stewardship groups and members at large. This committee will focus on both parcels of Block 602 as well as Block 564. Its purpose is to:
 - Provide expertise in areas of terrestrial management;
 - Provide technical advice on the effectiveness and priority of fish works; and
 - Ensure that all projects do not compromise fish and wildlife habitat.



C.W. Young Channel

6.1.2 Fisheries management: Conclude and implement an operating agreement with DFO regarding management of the fish hatchery and side channels.

As discussed previously, the operation and maintenance of the side channel system and the hatchery are the responsibilities of DFO. An operating agreement with DFO regarding these facilities will be established in tandem with the production of this management plan.

Appendix A recommends several actions with respect to the management of fish habitat in the side channels that should be addressed in the RDN/DFO operating agreement. These include:

1. Public safety improvements:
 - Secure the intake control valves for the side channel in a lock box.
 - Plant additional vegetation along the rearing pond dyke to discourage public access.
2. Habitat enhancements:
 - Re-vegetate the new side channel banks with appropriate riparian shrub species – e.g., willows, Black twinberry, etc.

- Add more gravel and instream LWD to enhance spawning and rearing habitat in the new side channel.

3. Monitoring:

- Assess the effectiveness of the new side channel in providing spawning, rearing, etc. habitat for salmonids.



Looking over bridge maintenance work

6.1.3 Park caretaking: Work with conservation partners to identify ongoing caretaking services.

Along with operating and maintaining the hatchery structures and water levels, CFDC crews also currently act as park caretakers on contract to the RDN, providing surveillance and minor maintenance as required. Preliminary discussions with CFDC indicate a willingness to continue in this role so long as funding is provided and there is hatchery-related work to be completed.

Within the term of this management plan, a park caretaker arrangement will likely continue with the CFDC. However, the long-term future (beyond 5 years) of the hatchery and CFDC's operations on the site remain unclear. At that point, the Park Management Steering Committee may consider a similar arrangement with another non-profit organization.

In the future, and as resources allow, the Committee may also undertake a volunteer park warden program to support park operations.

6.1.4 Edge protection: Identify ways to ensure ongoing protection of natural buffers around the perimeter of the park.

At the moment, the lands around the ERRPCA are relatively undeveloped, providing a natural buffer to the park's natural values. Should any adjacent lands be rezoned or subdivided for future development, RDN parks staff will work with planning staff to identify opportunities for protecting this buffer through site planning, conservation covenants, and other land use tools in order to ensure the continuing protection of park boundaries and the conservation efforts within ERRPCA.

6.1.5 Gravel pit: Work with the current permit holder and provincial Inspector of Mines to complete reclamation of the pit, and develop plans for habitat restoration and future waterworks.

Reclamation and short to mid-term uses: The RDN will coordinate with Haylock Brothers Paving Ltd. and the Inspector of Mines regarding completion of Haylock's reclamation commitments to allow the existing extraction permit to be closed. Reclamation activities are aimed at stabilizing the site until such time as final end uses are determined and a detailed site plan for those uses is developed, and should include:

- a. Regrade the site to eliminate any steep side slopes and recontour to a more natural landscape.
- b. Scarify compacted surfaces, reinstate topsoil and seed the site with an appropriate native seed mix to stabilize the soil surface and avoid erosion. Undertake removal of invasive species by acceptable methods for a period of 2 years after seeding.

- c. Retain (i.e., do not infill) the ephemeral pools; regrade the side slopes of the pools and plant with appropriate riparian species.

As per the management lease between the RDN and TNT/DUC, the gravel pit will continue to be a source of gravel for trail surfacing within the ERRPCA. The site can also be used as a parking and staging area for group use and special events. To expedite this, a site survey and preliminary grading/drainage plan should be commissioned by the conservation partners for installing a new access road and parking area away from the ephemeral pool; this plan could help to guide Haylock's regrading activities.

Long-term uses: Following required decommissioning, this area will remain as is until such time as AWS verifies its interest in developing a water intake facility in the park. Since it is already disturbed, the gravel pit site is the preferred location within the park for the future installation of new AWS waterworks.

To this end, Figure 6.1 suggests three project areas within the gravel pit:

- **Parking:** A gravel parking and staging area for group as noted above.
- **Habitat:** An opportunity exists to recreate a productive wetland around the current ephemeral pools in the eastern section of the gravel pit using natural runoff. With re-vegetation of native species typical of the area, such actions could provide significant improvements to this otherwise degraded habitat. Working with partners and local stewardship groups, habitat restoration projects can be undertaken that re-establish a wetland area and minimize invasive species.



Figure 6.1 Project areas in the gravel pit

- **Potential waterworks:** The AWS has indicated that an approximate 7-hectare site is needed for a new water intake facility, along with water pipe connections to the river. Since it is already disturbed, this site is the preferred location within the park for these works. It is preferable that pipe connections to the river intake follow existing park trails; however, there is the potential that a new 6 to 9 metre wide corridor will be required from the facility to the river. This connection should

Land Use BMPs that could be demonstrated in ERRPCA research plots:

- Infiltration swales
- Rain gardens
- Permeable paving
- Extensive green roof
- Rainwater capture and use (rainwater "harvesting")
- Absorbent landscape – use of soils and vegetation
- Rainfall interception by trees and other vegetation
- Non-chemical pest management
- Erosion and sediment control practices
- Low-water-use landscaping and irrigation practices

be curved to fit into the terrain to minimize the scarring of a straight clearing.

Whether waterworks are developed at this site or not, the remaining area could be replanted with pioneer tree species and an interpretive program of forest succession created. Another use that could occur independently or in conjunction with a future waterworks facility is construction of plots to research and demonstrate land use "best management practices" (BMPs). The plots could be provided for experimental use by research institutions and for demonstration to developers, builders and the general public of a variety of BMPs (see sidebar).

6.1.6 Park funding: Seek innovative revenue-generating opportunities that support park management goals.

Capital facilities, restoration projects and interpretive/educational programs are often eligible for grants from senior governments and private foundations. However, few grants exist to help offset operational and staffing costs.

Maintaining and protecting the ERRPCA will create significant demands on the RDN's tax-based funding resources. Under its Regional Parks and Trails Plan, the RDN's policy is not to charge fees for entry, parking or general use of regional parks and trails. However, fees can be considered for specific services such as offering programs through the RDN's recreation services or issuing permits for commercial tour operators.

Nonetheless, other sources of revenue streams will be explored that are compatible with the park's mandate and objectives. Recognizing that resource development prospects in the park are limited, the Park Management Steering Committee is open to innovative proposals from the private and non-profit sectors for revenue generation.

6.2. Park Use Zones

6.2.1 Establish a system of park use zones to provide a framework in which to manage the ERRPCA.

Parks are zoned typically to identify the types and levels of use that are appropriate to different parts of the park. Zone designations are intended to protect and enhance environmentally sensitive features while recognizing long-standing uses and public preferences, thereby reducing existing and potential conflicts between recreational uses and environmental conservation. Designating zones often becomes a balancing act between protecting key habitats and providing a meaningful outdoor experience.

Taking this situation into account, this plan subdivides ERRPCA into three zones shown in Figure 6.2 (as discussed previously, the small sections of the park located south of the Englishman River will be managed as part of Block 564 and are therefore excluded from these zones):

- **Conservation Zone:** The focus is to protect, conserve and enhance the natural landscape and fish and wildlife habitats. Conservation of

ecological assets takes precedence over human activities. This zone includes the mainstem of the river with a *minimum* riparian buffer of 30 meters from top-of-bank. Where necessary, trails will be relocated over time to outside this buffer. Controlled viewpoints would allow public access to the river at points that can withstand such access. The zone also includes the areas in the park surrounding the new C.W. Young Channel and other areas of the park that are relatively inaccessible (no trails), and which if left alone, will mature into older and old growth forest habitat.

- **Natural Environment Zone:** The focus is to protect natural values while providing passive, non-vehicular recreational opportunities in a largely natural environment. In general, the distribution of this zone recognizes the long-established trail system in the park. The activities permitted in this zone shall have low impact and involve limited development.
- **Facility Zone:** These are areas where human use is concentrated, and includes visitor facilities that require some landscape modification. This zone includes: the fish hatchery and corridor along the rearing ponds; the utility corridor; the gravel pit site; and park entrances and associated parking areas.

6.3. Conservation

6.3.1 Terrestrial habitats: Establish inventory and monitoring programs that support the conservation of terrestrial ecosystems and wildlife populations in the ERRPCA.

The diversity of habitats within ERRPCA and the variety of ecological processes associated with the Englishman River corridor provide an excellent opportunity to monitor the status of natural environments of the lower Englishman River watershed. The 2007 summer surveys completed as background to this management plan (see Appendix A) only partially documented the flora and fauna that occur in the park. Informed management may require a more comprehensive inventory to establish a 'baseline' against which to compare ongoing changes.

A generic monitoring program is comprised of seven basic steps (see sidebar), which are discussed in greater detail in Appendix A. Monitoring programs that work in conjunction with educational objectives can provide opportunities for meaningful study programs and nurture greater public understanding of the natural values in their environment.

It is envisioned that the Fish and Conservation Advisory Committee will provide direction on inventory and monitoring priorities. Based on recommendations from the "Inventory of Natural Resources" (Appendix A), inventory and monitoring activities could include the following:

Basic steps in a monitoring program (from Appendix A)

- 1) Define objectives.
- 2) Identify potential sources of existing data.
- 3) Develop a survey protocol.
- 4) Design a field program and set-up.
- 5) Complete a preliminary census/inventory.
- 6) Continue monitoring on a regular basis, as defined by the survey protocol.
- 7) Compare monitoring results with the baseline inventory; adapt survey protocol and/or field program as necessary.

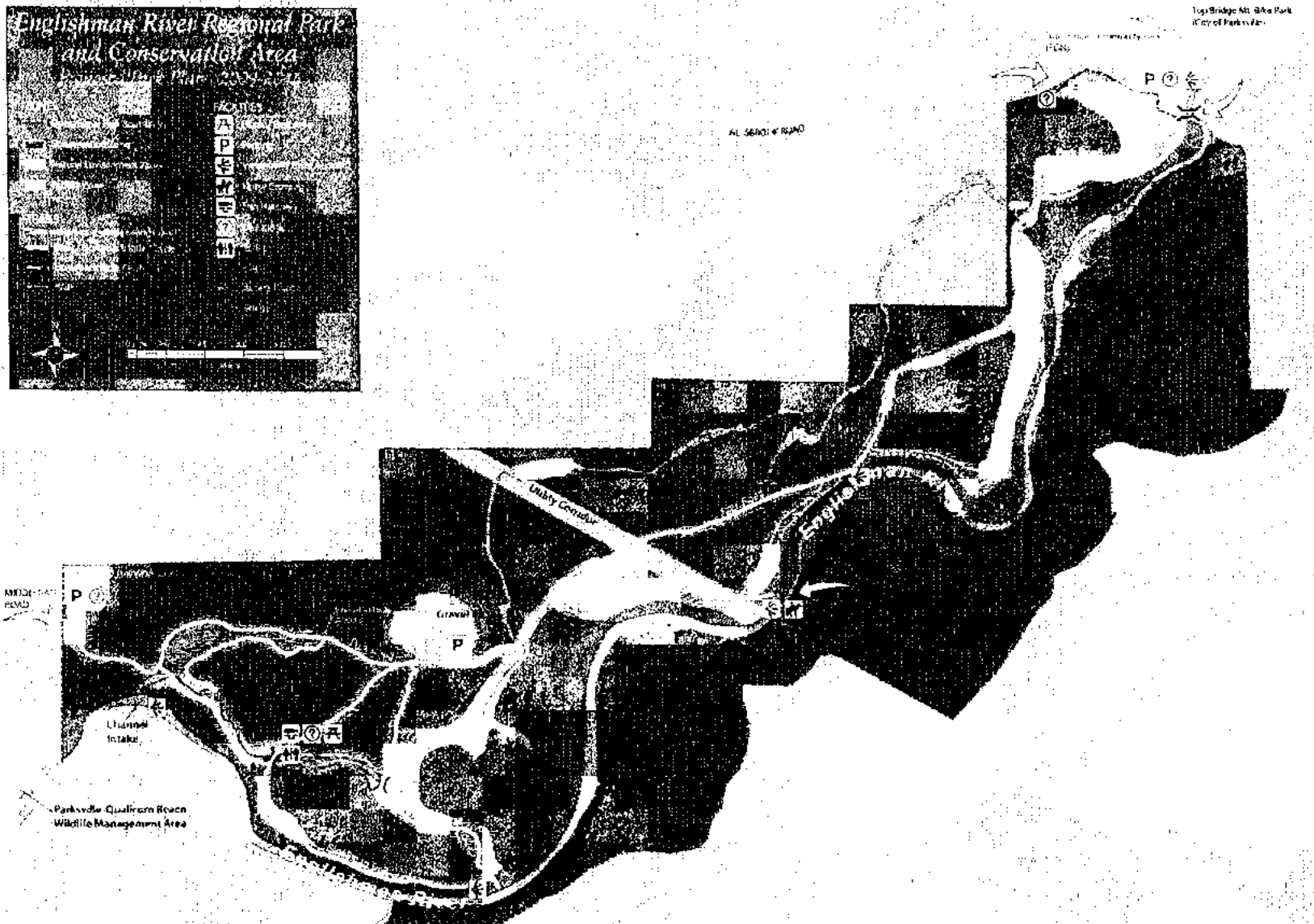


Figure 6.2 ERRPCA Park Zones and 5-year plan for park amenities

- Basic inventories: address flora and fauna that were not fully covered in the summer 2007 surveys (Appendix A), such as non-vascular plants, other invertebrates, etc.
- Habitat change: changes in the spatial distribution of the habitat types identified in Appendix A, using aerial photo analysis.
- Human use: impacts of authorized activities on sensitive sites or habitats using standard methods applied in BC Parks.
- Mammal populations: focus on size and movement of large ungulates such as Roosevelt Elk.
- Beaver populations: monitor beaver activities and possibly identify management needs to avoid conflicts with fisheries and recreational uses.
- Bird populations: develop an ERRPCA-specific bird inventory, starting with Christmas bird count data and expanding to other seasonal bird use of the park.
- Invasive species: develop a baseline inventory of invasive species distribution, along with management/removal plans where needed; e.g., Scotch broom, English ivy, English holly, Himalayan blackberry and possibly green frogs.

6.3.2 River habitats: Work with stewardship partners to manage, restore and monitor the aquatic and riparian habitats along the Englishman River within the park.

Of primary concern for the protection of these habitats, as well as for public safety, is the stability of the river banks. The Park Management Steering Committee will work with fisheries partners on the following:

- LWD structures: review the status of river structures and channel works and plans for their maintenance and upgrading.
- Riparian planting: review the riparian planting prescriptions recommended in the Poulin (2005) report and summarized in Appendix A, and implement them as appropriate.
- Erosion monitoring: monitor bank erosion rates in key sites.

6.4. Recreation

Figure 6.2 provides a conceptual plan for park entrances, trails and public amenities for the period of this plan. This plan is subject to review and revision based on use trends and impacts observed over the next 5 years.

6.4.1 Access points: Manage accesses to the ERRPCA to ensure public safety, avoid or reduce impacts to natural values, and minimize adverse impacts on neighbours.

Park entrances: As shown in Figure 6.2, there will be three authorized points of access: Allsbrook Road, Middlegate Road and Top Bridge Crossing. These three locations serve as gateways to ERRPCA and will be



Stopping motor vehicles

given a consistent visual identity, including common signage that welcomes users to the park, provides a map and directions, and sets out user rules and risks. Measures specific to each entrance include the following:

- *Allsbrook Road:* As the entrance to the Park Road, Allsbrook provides the only entrance for vehicle access into the park. A listing of parties with keys to the gate to the park road will be maintained and updated on a regular basis.
- *Top Bridge Crossing:* Provide direction to the main trail from the ERRPCA side of the bridge; block off access and post warning signs to the informal riverside trail until a safe route has been defined and installed.
- *Middlegate Road:* Establish a parking area as per article 4.1 (g) in the 25-year lease. This requires a topographical survey and detail plans prepared with a civil engineer, placing the majority of works on existing disturbed lands. Design details should help to protect the park from unauthorized ATV access through the use of barriers and gates.

Horseback access: An agreement exists between the RDN and TNT (2003) regarding horse trail links across the river to the River's Edge subdivision on the south bank. One of these trails crosses just north of the utility right of way with a trail linking this crossing to the ERRPCA park road. This horse crossing will be formalized for the term of this plan, but is subject to change in the long term based on a review of impacts on aquatic habitat and the protection of future community water intakes.

Adjacent lands: The western edge of the ERRPCA abuts a public road right-of-way; otherwise, the park is surrounded by conservation and private farmlands. Extending trails from the ERRPCA to lands beyond, as part of the growing regional trail system, can be done only with the permission of the adjacent landowners. Desired linkages to trails outside the ERRPCA should be identified and negotiated with these landowners. Once the desired linkages are determined, other existing informal linkages should be decommissioned.

6.4.2 Trails: Manage the trail network to protect sensitive areas from recreational impacts while providing sustainable recreation.

Figure 6.2 also shows the location of trails and related facilities.

Regional trail connection: The Park Road operates as a multi-use trail for hikers, horseback riders and cyclists, linking Top Bridge Crossing to the Middlegate entrance. It is a key segment in the regional trail system. There are sites on this road that are prone to drainage and flooding problems. These sites will be monitored over the next five years to determine the sources of these problems and to investigate potential solutions.

Trail rationalization and improvements: The internal trail system will provide opportunities for enjoying accessible natural features while ensuring their continuing protection. To do this, some existing trails will be

extended, realigned or improved, and a few will be decommissioned. In particular:

- Trails paralleling the river that are within the Conservation Zone will, over time, be set back at least 30 m from the top of bank, to protect riparian habitat, prevent bank erosion, and avoid flooding.
- An educational campaign will be aimed at encouraging park users to stay on authorized trails, through directional and informational signage.
- The River Trail (currently running from the utility corridor to the Clay Banks viewpoint) will be decommissioned.
- Access to the river will be provided for viewpoints at sites that can withstand public use.
- Where needed, trails to riverside points may also be designed to serve as accesses for monitoring and maintenance of LWD structures. They will be sufficiently wide and surfaced to support occasional use by heavy equipment. Where additional accesses are needed for this purpose (e.g., at the former River Trail trailhead), they shall be temporary in nature, and blocked off after each use with sufficient woody debris to discourage public use.
- The twinning of the Channel Trail from the hatchery to Clay Banks Trail will be completed. The rearing pond at the west end of the Channel Trail provides a unique opportunity for viewing fish, and access to the small dock overlooking the pond should be provided. Benches could be provided on the dock for observers.
- No new trails will be constructed along the recently completed section of the C.W. Young Channel. Accesses for maintenance and monitoring purposes will be of minimal nature and be blocked off after each use with sufficient woody debris to discourage public use.

As in any public park, some park visitors will still use temporary access trails, decommissioned trails and 'off trail' areas; for example, some fishers will still walk the length of the river bank, whether there is an official trail there or not. It is anticipated that these users will be of sufficiently small numbers as to have minimal impact on the environment, and that they are doing so at their own risk.

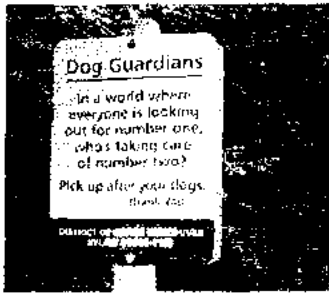
Unauthorized vehicle use: Unauthorized use by all-terrain vehicles (ATVs) and "dirt bikes" has negative impacts on the natural environment as well as on the outdoor experiences of other users. BC is one of the few remaining areas in Canada with no form of registration or licensing for ATV's and dirt bikes. However, the Off-Road Vehicle Coalition is working to achieve improved management in the province. The RDN and its partners will continue to urge the Province to legislate licensing while working on awareness of the conservation values at stake in the ERRPCA.

Dogs: Although not identified as a major problem at this time, as user levels in ERRPCA rise, conflicts with dogs could increase as well as the potential for wildlife harassment or habitat damage. Dogs on-leash is a requirement of TNT on all of its properties, but is not stipulated for the



Rustic materials as fencing

ERRPCA in Bylaw 1399; however, the Bylaw does call for dogs to be kept under control at all times. Given its conservation objectives, consideration will be given to designating the ERRPCA as a 'dog-on-leash' area under Bylaw 1399. As in other regional parks, indeed in park systems in general, enforcement is largely through awareness and 'peer pressure' by other park users.



Addressing pet issues with humour

6.5. Education and Interpretation

6.5.1 Park information: Improve information about the ERRPCA through signage, brochures and web-based applications.

With a Community Tourism grant from the Province, the RDN has designed and installed entry signs at some of its regional parks as well as directional signs on roads to these parks, with the concurrence of the Ministry of Transportation. Signs for the ERRPCA were installed in 2008 at the Allsbrook/Top Bridge access.

An information kiosk has also been installed at the Allsbrook/Top Bridge access area, which will act as a platform for information about the ERRPCA and its place in the regional parks and trails system. Information about the natural values of the ERRPCA will be developed for use at the kiosk, as well as in park brochures and the RDN website.

Trails maps will also be developed for use at the information kiosk, and in brochures and on the RDN website. Small-scale directional signage will also be considered for major trail junctions and destinations in the ERRPCA.

6.5.2 Self-guided interpretation: Work with conservation and education partners to establish an interpretive signage and self-guided trail program.

An interpretive program can enrich visitors' experiences as well as promote public understanding of park goals and objectives. Self-guided trails at ERRPCA would help visitors to learn about the diversity of habitat types, native flora and fauna of the Coastal Douglas-fir ecosystem; and the conservation aims of the park. Opportunities for self-guided trails in the ERRPCA include:

- **Riverside trails and viewpoints:** inform about sensitive riparian habitats and restoration work on the river mainstem.
- **Channel trail:** inform of the life cycle and efforts to provide habitat for salmon, and hatchery activities.
- **Big Tree Interpretive Trail:** highlight historical forest ecology.
- **Clay Banks Viewpoint:** highlight the geological history of the clay banks, and the power of the river to transform landscapes.

Mindful of the desire to minimize intrusions on the natural character of the ERRPCA, self-guiding can be relatively unobtrusive using numbered posts with brochures with explanations corresponding to the numbered sites. The brochures could be available for pick-up and drop-off at the park



New design for RDN Regional Park/Trail signs

entrances or by downloading from the RDN's website. Over time, major viewpoints could have permanently mounted interpretive signs.

6.5.3 Educational programming: Develop partnerships with educational institutions to utilize the ERRPCA as an environmental classroom.

Educational activities in the ERRPCA will be supported in the short- to mid-term by creating a parking and staging area in the gravel pit site for use by buses and vans.

University-level activities: Preliminary discussions with faculty in the Resource Management Program at Vancouver Island University (VIU - former Malaspina University-College) suggest a strong interest in incorporating research and interpretive activities at ERRPCA into the curriculum. Faculty members were enthusiastic about involving students in a hands-on setting where their efforts could have ongoing management value.

Two programs of particular relevance are the Bachelor of Natural Resource Protection (a 4-year degree) and the Resource Management Officer Technology program (2-year diploma). In time, the ERRPCA could become a 'living laboratory' for training in field and analytical skills in these programs, in the same way as Milner Garden has become an on-site classroom for VIU's horticultural programs. Examples of activities with some management relevance that could be undertaken through these programs include:

- Standardized mammal inventories – e.g., pellet count transects to estimate deer abundance; beaver "influence" counts; small mammal trapping (advanced field skills).
- Baseline inventories and development of management programs, if needed, for invasive species (e.g., Scotch broom, Green frogs).
- Determining and monitoring the ecological impacts of recreational activities using methods applied in BC provincial parks.
- Designing 'self-guided' interpretive programs and signage along trails and at viewpoints in the park.

Public school programs: A few larger regional park systems in B.C. offer educational programs to the general public and school districts; e.g., the Capital Regional District (www.crd.bc.ca/parks/events/schoolschedule.htm) and Metro Vancouver (www.gvrd.bc.ca/parks/events-and-programs.htm). In the long term, the RDN Recreation and Parks Department may explore opportunities to develop similar programs in regional parks.

In the ERRPCA, school programs focused on natural history could be developed that involve completing small-scale studies that could assist in maintaining a flora and fauna database. However, preliminary discussions with staff at School District 69 indicate that these programs would require development and marketing to area schools, and should be

School group in ERRPCA (from Englishman Patient newsletter, Spring 2004, p.4)

'Grades one and two classes from Winchelsea Elementary School in Parksville had a fun Friday morning recently when they visited the small hatchery on the Englishman River. One of the dads, Jeff Young, who works for the Englishman River Enhancement Group, led the kids on a tour of the hatchery and the side channel. The children were intrigued to see the thousands of tiny pinks racing into the exit pipe to the channel as soon as the light was let into their rearing tank. After a snack of nutritious cookies (baked by Carol—hers are the best!) the students headed down the path to the mainstem where Mike and Bob were tagging coho smolts. Along the way, the kids planted some of the donated cedar seedlings. These students would not have been able to experience nature and learn about fish that day if ERWRP had not paid for the school bus. Unfortunately, school budgets don't include these kinds of field trips any more.'

complementary to the existing school curriculum and readily accessible (travel may need to be subsidized).²

In the meantime, the RDN will support stewardship groups that already provide natural history programs for schools and youth to expand their efforts into the ERRPCA.



Bridge crossing along Steelhead Trail

6.5.4 Educational facilities: Examine the potential use of existing park buildings as future interpretive and educational facilities.

The existing hatchery buildings are owned by the CFDC. This plan has assumed that the hatchery will function as is for the next 5 years. However, depending on the future of hatchery activities, the hatchery buildings may become available for re-use. Potential opportunities include an indoor or outdoor classroom or small-scale research facility.

6.6. Public Safety and Security

6.6.1 Risk management: Identify and raise awareness among the visiting public of hazards within the ERRPCA.

The specific hazards within the park include:

- Floods: trails may be closed during seasonally high waters.
- Natural fire risk exacerbated by unauthorized party activities: under Bylaw 1399, open fires are not allowed in the park. As in its other regional parks, the RDN will impose a “no smoking” rule whenever the Province bans campfires in provincial parks and on Crown lands during the summer months.
- Slipping and drowning hazards in waterbodies: particularly at the Englishman River at Top Bridge, which is a popular ‘swimming hole’ during the summer. Other risk areas are the fisheries side channels, the rearing ponds, and at the fisheries-related water intake works.
- Exposed cliffs in limited areas within the park.

Warning signs regarding these hazards will be a part of the overall sign strategy for the park.

6.6.2 Emergency planning: Coordinate emergency responses and fire management with local agencies.

The RDN will work with the Errington Volunteer Fire Department and the Coastal Fire Centre of MOF to develop coordinated responses to emergencies and fires in the ERRPCA, including protocols for fuel management. Opportunities for emergency training activities in the ERRPCA may also be explored.

The Errington Fire Department has approached the RDN regarding a secondary emergency route to and from the Errington area (particularly Englishman River Estates) through the ERRPCA. A route was proposed to

² J. Powell, School District 69

connect the end of Middlegate Road to the Park Road and thence to Allsbrook Road.

Due to the steep grade and very unstable soils, the ERRPCA partners do not support vehicle access being developed from Middlegate Road into the park. However, they do support the use of the future parking lot at Middlegate Road as a staging area for emergency vehicles, and encourage the Fire Department to find a route that remains above the river valley and connects to Allsbrook Road via existing logging roads.

6.6.3 Hazard inspection:

RDN staff will monitor tree hazards along trails and inspect gates, bridges and other park amenities on a regular basis, and particularly after storm events, to ensure that they are safe for public use.

7.0 Operational Actions

The following provides a guide of specific actions to be completed within this five-year management term.

- "High" priority indicates actions to be undertaken in the first 1-2 years.
- "Medium" priority indicates actions to be undertaken in year 3-4.
- "Low" priority indicates actions that can wait until year 5 or beyond.

Note that action priorities may change as a result of the annual review of this Plan and in any subsequent revised Plans.

POLICY TOPIC	ACTIONS	PRIORITY for 2009-2014	COST (order of magnitude)
1. Cooperative Management	a) Determine representatives for the Park Management Steering Committee and call the first meeting to confirm mandate, meeting formats, schedule, minute taking responsibility, etc. Continue to meet at least annually.	High	\$100/year
	b) Establish initial representation on the Fisheries and Conservation Advisory Committee; contact organizations with invitation and request for representatives; convene first meeting to confirm mandate, meeting formats, schedule, etc.; continue to meet at least annually.	High	\$200/year
	c) Finalize the operating agreement with DFO for the operation and maintenance of the side channel and related works, including the hatchery.	High	---
	d) Continue the caretaking contract with CFDC; monitor for effectiveness. Identify other possible parties that could take over caretaking service if arrangements with CFDC are discontinued.	High	\$12000/year
	e) Organize a seminar session with RDN Planning staff to introduce the ERRPCA and its management plan, and to discuss future possible land uses around the park. Establish a protocol whereby Parks staff provides input on future land use designations, zoning decisions, etc. for lands around the ERRPCA.	High	---
	f) Continue to collaborate with the AWS in identifying a site for a future water intake facility that does not compromise the integrity of the park's natural systems.	High	---
	g) Work with Haylock Brothers and the Superintendent of Mines to complete the decommissioning of the gravel pit. Decommissioning will take into account preserving the ephemeral pools and completing a survey and grading plan for a parking area.	High	\$500

POLICY TOPIC	ACTIONS	PRIORITY for 2009-2014	COST (order of magnitude)
	h) Investigate the feasibility of a volunteer park warden program.	Low	----
2. Park Use Zones	a) Initiate an information and education program to inform park users and the public about the purpose of the zones and the need to stay on designated trails.	High	Part of park signage
	b) Institute the Park Use Zone template in all aspects of management of the ERRPCA; i.e., include in management directions, public messaging, etc.	High	---
	c) Initiate decommissioning of trails that do not form part of the 5-year Plan; construct barriers (native vegetation, split-rail fencing, etc.) along trail edges, at former trail entries and wherever needed to ensure that park users remain on authorized trails and discourage entry to Conservation Zones.	Medium	\$5000/year
	d) Over time, relocate applicable trails, or portions thereof, to outside the 30-m buffer (from top of bank) that comprises the Conservation Zone along the Englishman River.	Low	\$5000/year
3. Conservation	a) Develop a 5-year plan for generating a comprehensive baseline inventory of natural resources in the ERRPCA, based on the findings and recommendations of the initial Inventory of Natural Resources (Appendix A). Execute the plan and review annually.	High	\$5000
	b) Develop a 5 year plan for monitoring the ecological health of the ERRPCA. The plan should identify key indicators and methods for consistently and systematically measuring them. It should address the effects of human use on the park. Initiate the monitoring program, assess results annually, and adapt the program as needed.	High	\$5000
	c) Initiate a baseline inventory of invasive plant distribution and a management /removal plan (e.g., community 'broom bashes').	Medium	\$1000
	d) Work with fisheries partners (DFO, CFC, ERWRP, etc.) to: <ul style="list-style-type: none"> - review status of river structures and channel works, and plans for their maintenance and upgrading; - monitor bank erosion in key sites (e.g., side channel intake); - review and implement the riparian planting prescriptions recommended in the Poulin, 2005 report, as appropriate. 	Medium	----
	e) Design and implement habitat restoration projects at the ephemeral pool in the eastern portion of the gravel pit area.	Low	---

POLICY TOPIC	ACTIONS	PRIORITY for 2009-2014	COST (order of magnitude)
4. Recreation	a) Design and install directional signs at major trail nodes, including small trail maps and approximate distances and times to other park nodes.	High	\$5000
	b) Install improvements to the Allsbrook Road park entrance including the installation of park signage and an information kiosk.	High	Completed
	c) Identify the specific location for a horse crossing of the river; design and construct the crossing.	High	\$10,000
	d) Confer with utility companies regarding portions of the utility corridor that form part of the 5-year trail network, particularly with respect to hazard tree removal and invasive species management programs.	High	--
	e) Complete design and construction of the Middlegate parking area, including entry signage and an information kiosk.	Medium	\$25,000
	f) Identify issues at other informal access points (i.e. P-QB WMA, utility corridors); work with partnering agencies to resolve issues.	Low	--
	g) Implement specific trail improvements and generate names for new trails as needed - e.g.: <ul style="list-style-type: none"> i) Northeast corner: formalize a pedestrian connection to Top Bridge Crossing and develop a feasible route below the bluffs along the north side of the C.W. Young Channel outlet, to connect to the Park Road. Consider a viewing platform overlooking the channel. ii) Trails east and west of Long Run lookout: create a distinct connection to the Park Road at the north end; develop a separate horseback/cycling inner trail; relocate the pedestrian trail out of the 30-meter Conservation Zone. iii) Decommission former River Trail; remove counting station bridge; install barriers and signs explaining reasons for trail closure at former Park Road and Claybanks Trail connections. iv) Channel Trail at Beaver Pond: re-vegetate existing clearing and old logging road with pioneer species and decommission side trails. v) Channel Dam: construct split-rail barrier at Park Road to prevent access onto dam; replant top of dyke with willow species. 	Low	\$20,000 +

POLICY TOPIC	ACTIONS	PRIORITY for 2009-2014	COST (order of magnitude)
	<ul style="list-style-type: none"> vi) West end of Channel Trail: design and construct a switchback connection to the Park Road, taking into account the steep slope and loose soil conditions. vii) Connection from west end of Park Road to Middlegate entrance: improve trail conditions by repairing tank traps, decommissioning side trail webs and improving surfacing materials. 		
5. Education and Interpretation	a) With Ministry of Transportation approval, install road signs with directions to the park.	High	Completed
	b) Continue public/open house events on BC Rivers Day and during the Brant Festival.	High	---
	c) Develop interpretive information for use at the entrance kiosks that focuses on the natural resources and values of the park - native flora and fauna, post-logging plant succession, geology, riparian habitat, stream ecology and restoration efforts, etc.	Medium	\$5000
	d) Design a brochure that introduces the ERRPCA's conservation values, recreation opportunities, and a map with overview of available trails. Distribute through the RDN website, and make them available to tourism outlets and community facilities.	Medium	\$3000
	e) Design a self-directed interpretive system for one of the key trails in the park. Based on experience with the pilot, develop interpretive facilities on other trails and key viewpoints within the park.	Low	\$3500
	f) In consultation with stewardship groups and the School District, build on existing school and youth programs to undertake educational activities in the park.	Low	---
	g) If and when hatchery facilities are decommissioned, consider their use as classrooms or labs in the next phase of educational and/or research programming in the park.	Low	
6. Public Safety and Security	a) Work with the Errington Volunteer Fire Department, the MOF Coastal Fire Centre and other emergency agencies to develop coordinated responses to emergencies in the park, training needs and fuel suppression management protocols.	High	---
	b) Review tree hazards and inspect and repair gates, bridges and other constructed amenities regularly, and particularly after storm or high wind events.	High	---
	c) Monitor drainage and flooding along the Park Road, identifying sources and possible solutions as needed.	Medium	

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Appendices

- A: Inventory of Natural Values (Howkes et al., 2007)
- B: Stakeholder Agencies and Organizations Contacted
- C: User Survey Results Summary
- D: Amenity and Trail Photo Inventory

Appendix A: Inventory of Natural Values

Appendix A: Inventory of Natural Resources



2008-2012 Management Plan for Englishman River Regional Park *A Conservation Area along the River Corridor*

Prepared for



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EXECUTIVE SUMMARY

The Regional District of Nanaimo (RDN) manages about 650 hectares of regional park, trail and conservation lands in the mid-Vancouver Island area along with another 250 hectares of neighbourhood or community parks and trails. A Regional Parks and Trails Plan completed in 2005 identifies the goals of the RDN with respect to land management, stewardship and recreational use of these regionally significant properties. The RDN often acts in partnership with major conservation and trust organizations and the Province when managing its large park properties. Together, the RDN and its partners seek to protect and steward the lands, while at the same time providing for rewarding and educational outdoor recreational experiences. A primary management goal for these lands will always be to strike a sustainable balance between protection and human use.

Using existing information and available orthoimages of the property, we described the natural values of the Englishman River Regional Park and Conservation Area (ERRPCA), including the habitat types of the property and existing flora and fauna. A Species at Risk overview was completed that identifies the species with current conservation designation (either provincial or federal) that do, or could occur in the park. Field visits in July and August 2007 were completed to validate the habitat delineation and to identify the habitats in which species with conservation designation could occur. All flora and fauna observed during those field visits were recorded. Some of the species observed in the ERRPCA included the blue-listed Red-legged Frog (*Rana aurora*), Band-tailed Pigeon (*Patagioenas fasciatus*), Purple Martin (*Progne subis*), Pacific Sideband (*Monadenia fidelis*) and red-listed Common Wood-nymph, pegala ssp (*Cercyonis pegala incana*). An incomplete plant list of 240 species in five broad categories (forbs, grasses sedges and rushes, ferns and fern-like plants, shrubs, and trees) was compiled. None of the plants observed has current conservation status, although several of them are not often encountered.

The Englishman River supports significant populations of chum, coho and steelhead along with other species. Mainstem and side channel fish habitat in the ERRPCA provides high quality rearing and spawning habitat for salmon and trout although the mainstem channel has not been stable since the late 1970's. Within the 16 km anadromous section, erosion and lateral migration of the mainstem channel has been most significant in the reach within the ERRPCA. Forty-one instream structures have been constructed on the mainstem within the park to improve rearing habitats and, in some cases, to provide bank protection. These structures have decreased bank erosion at two chronic erosion bends in the ERRPCA.

Certain areas are identified as having high potential for restoration activities, while other areas, which have been recently modified (e.g., DFO side channel) could benefit from revegetation to the adjacent banks. Park development and use should proceed in concert with recommendations on protection and restoration priorities identified in the Englishman River Recovery Plan and Strategy for Protection and Restoration of the Englishman River Mainstem. In general, the diversity of habitat types that exist within ERRPCA lands contribute to relatively high biodiversity and most of the park should be maintained in its current form so that the natural process of succession can proceed.

Educational and recreational opportunities that combine the existing trail network with a self-guided tour of significant natural areas would help promote the concept of conservation to users of the ERRPCA. This can be extended to the local community through the development of education programs aimed at students in elementary, middle, and high school, as well as students attending post secondary institutions like Malaspina University College. The integration of programs among the various levels of education would contribute to an overall appreciation for natural areas like ERRPCA.

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We would like to thank the Regional District of Nanaimo, in particular, Joan Michel, for providing us with the opportunity to contribute to the development of a management plan for the (ERRPCA. Joan also spent a considerable amount of time providing us with information on the park and adjacent lands. M. Sheng, Department of Fisheries and Oceans. F. Smith, Englishman River Watershed Recovery Plan Steering Committee and J. Craig, BC Conservation Foundation provided their thoughts on future development, protection and restoration objectives for the ERRPCA. Robin Tamasi of LGL Limited generated the maps used in this report. We appreciate the assistance of all of these individuals.

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INTRODUCTION

The Regional District of Nanaimo (RDN) manages about 650 hectares of regional park, trail and conservation lands in the mid-Vancouver Island area along with another 250 hectares of neighbourhood or community parks and trails. A Regional Parks and Trails Plan completed in 2005 identifies the goals of the RDN with respect to land management, stewardship and recreational use of these regionally significant properties. The RDN often acts in partnership with major conservation and trust organizations and the Province when managing its large park properties. Together, the RDN and its partners seek to protect and steward the lands, while at the same time providing for rewarding and educational outdoor recreational experiences. A primary management goal for these lands will always be to strike a sustainable balance between protection and human use.

In October 2003, RDN acquired the Englishman River Regional Park and Conservation Area (ERRPCA) from TimberWest through a conservation partnership led by The Nature Trust of BC that included Ducks Unlimited, the Nature Conservancy of Canada, and the Regional District of Nanaimo, amongst others. The 207 hectare property was subdivided into two pieces to allow the Province of BC to contribute to the acquisition. In late 2004, the Regional District and the Ministry of the Environment concluded a 25-year management lease on the 34 hectare Provincial parcel along with a Sec. 219 conservation covenant and a statutory right of way regarding future potential use of the lands for long-term drinking water supply infrastructure. In 2006, the Regional District concluded a 99-year lease on the 173 hectare main parcel with The Nature Trust of BC, Ducks Unlimited, and the Nature Conservancy of Canada. The two parcels comprising ERRPCA are to be managed together as one regional park and conservation area.

In association with LANARC Consultants Ltd., LGL Limited environmental research associates produced a management plan for ERRPCA. LGL completed the Inventory and Study of Natural Values and prepared recommendations with respect to future land use, conservation, and educational opportunities on the property relating primarily to the existing and future natural values of the park. LGL also provided comment on some potential rehabilitation projects for specific areas of the park that will enhance existing habitats and create new ones with a goal of increasing the biodiversity of flora and fauna of the property.

Objectives

The objective of this project was to provide RDN with a management plan for ERRPCA that aligns with other management plans for other parks in the region, but that is tailored to the unique natural values, recreation opportunities, and land uses of ERRPCA. To this end, LGL Limited had primary responsibility for conducting an inventory and study of natural values associated with the ERRPCA. The inventory and study had the following sub-tasks:

- a. Using a habitat stratification approach, compile a list of habitat types and flora and fauna of the ERRPCA.
- b. Describe vegetation and wildlife habitat values by property sub-area;
- c. Identify fish species within the mainstem and side channel habitats;
- d. Describe distribution and timing of habitat use based on life cycles of native fish fauna;
- e. Identify any red- or blue-listed species;
- f. Assess the extent of invasive species;
- g. Describe water sources on the property, shoreline stability, and wetlands;

- h. Using available air photo time series, investigate the history of river channel positions and evaluate the stability of the mainstem channel adjacent to the ERRPCA;
- i. Situate ERRPCA in the larger context of the Englishman River Watershed Recovery Plan (ERWRP) and Englishman River conservation corridor;
- j. Identify ways to increase natural values at the ERRPCA, including restoration of the former gravel pit; and
- k. Include all fish works and mainstem habitat enhancement structures in the natural values inventory.

In addition, LGL provided information on how the natural values of the ERRPCA could be integrated with educational and recreational values of the park.

Study Area

The ERRPCA is located southeast of the City of Parksville on Vancouver Island, about five kilometres upriver from the estuary (Figure 1). The ERRPCA consists of 207 hectares of Englishman River floodplain, largely forested, and includes almost five kilometres of river frontage. In the past, the property was used primarily as managed forest; private landowners also permitted minor gravel extraction, salmon habitat enhancement and informal passive recreation to take place there. The ERRPCA forms part of a series of conservation and park lands stretching about 20 kilometres along the Englishman River from the estuary to the falls.

The ERRPCA is wholly contained within the Moist Maritime subzone of the Coastal Douglas-fir biogeogeoclimatic zone, with the ecological indicators (plant species, etc.) suggesting that the ecosystems present are typical of the moister variants of this subzone. The Moist Maritime Coastal Douglas-fir subzone (CDFmm) occurs at low elevations (below 150 m) along southeastern Vancouver Island, north to Comox, and throughout the Gulf Islands. It occurs in the rainshadow of the Olympic and Vancouver Island mountain ranges and has a climate of warm, dry summers and mild, wet winters. The mean annual temperature of the CDFmm subzone ranges from 9.2°C to 10.5°C. Even during the coldest months of the year the average daily temperatures do not fall below 0°C and the absolute daily minimums rarely drop below -10°C. Mean annual precipitation varies from 647 to 1263 mm. Very little precipitation (approximately 5%) falls as snow, most of which melts within a week of falling.

The coastal variety of Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) is the most prominent tree species on upland sites within this subzone. Other common tree species which co-occur with Douglas-fir on moist to mesic sites include grand fir (*Abies grandis*), bigleaf maple (*Acer macrophyllum*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), red alder (*Alnus rubra*), western white pine (*Pinus monticola*), western hemlock (*Tsuga heterophylla*), and western redcedar (*Thuja plicata*), while arbutus (*Arbutus menziesii*), western flowering dogwood (*Cornus nuttallii*), bitter cherry (*Prunus emarginata*), and shore pine (*Pinus contorta* var. *contorta*) occur locally on drier and/or nutrient poor sites. Although it is a locally significant tree species within the CDFmm subzone, garry oak (*Quercus garryana*) is not present in the vicinity of the Englishman River. Almost all forests within this subzone have regenerated following extensive logging that has been ongoing in the region since the turn of the last century and are thus represented by a mosaic of forests of different ages and structures.

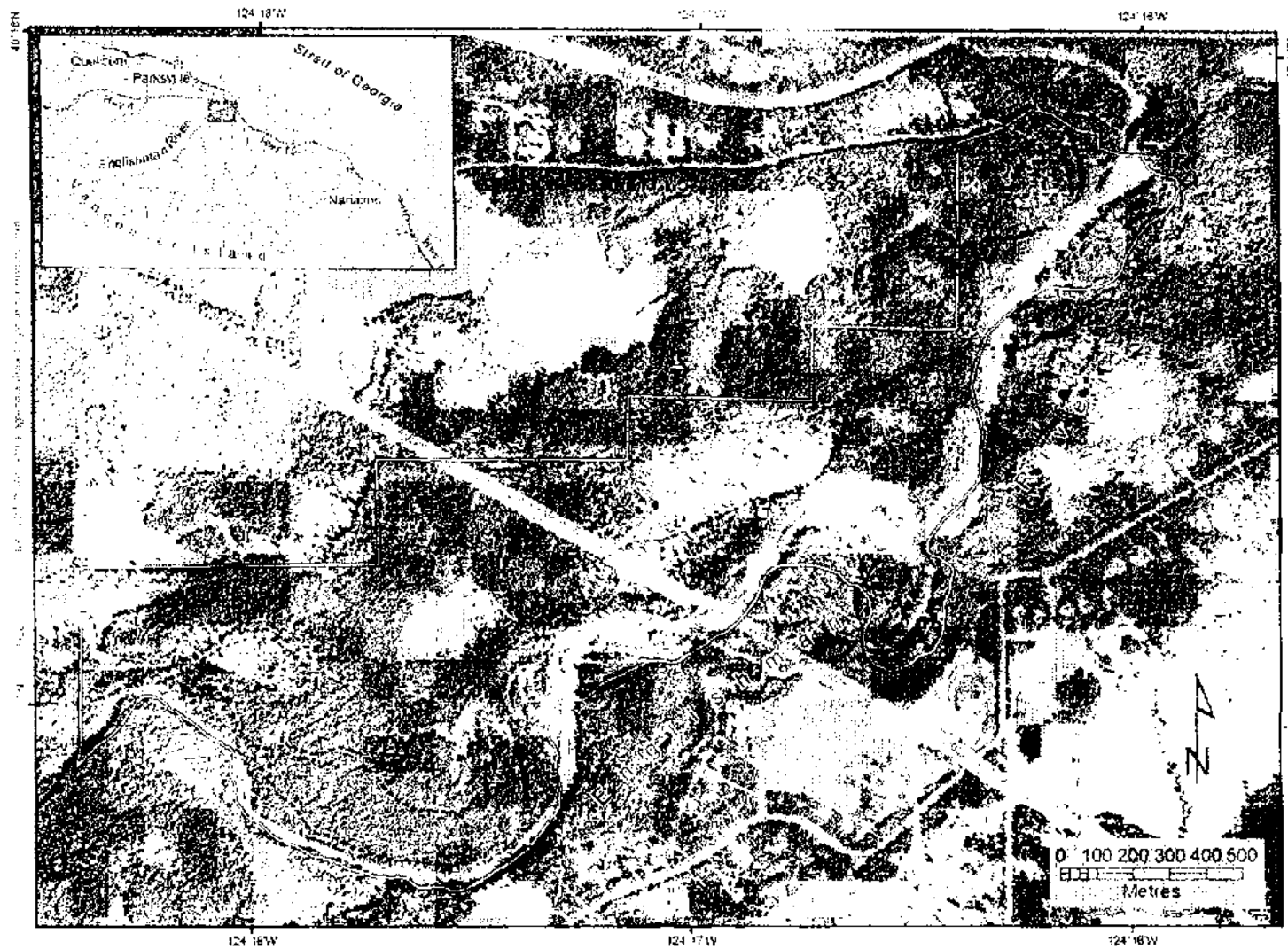


Figure 1. Location and boundary (in yellow) of the ERRPCA relative to Nanaimo, BC. Existing road and trails indicated with black dotted line.

Understory vegetation in the CDFmm subzone is characterized by species such as salal (*Gaultheria shallon*), red huckleberry (*Vaccinium parvifolium*), Oregon-grape (*Mahonia* sp.), oceanspray (*Holodiscus discolor*), and baldhip rose (*Rosa gymnocarpa*), with forbs such as foamflower (*Tiarella trifoliata*), sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), sweet-scented bedstraw (*Galium triflorum*), broad-leaved starflower (*Trientalis borealis*), and others dominating the herb layer. The localized distribution of this subzone in British Columbia in combination with the unique climatic and habitat conditions that occur results in a rich biodiversity, including at least 50 plant species that occur nowhere else in the province. Many of the species that occur in this subzone are considered rare by either the British Columbia Conservation Data Centre (CDC) or the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

METHODS

This description of the environmental setting of ERRPCA was developed using several steps:

Step 1: Collection and collation of existing natural history information and resources (aerial photography, mapping, and species occurrence data);

Step 2: Delineation of ecosystems at ERRPCA;

Step 3: Development of Species at Risk Overview;

Step 4: Ground surveys to develop a comprehensive inventory of natural values, to assess existing habitat and channel condition, and to verify presence or potential of presence for rare and endangered species;

Step 5: Discussions with stakeholders concerning fisheries resources in the Park and Englishman River; and

Step 6: Development of protection and restoration strategies and prioritization of activities.

The following sections detail the methods used during each phase of this project.

Collection and Collation of Existing Information

Information on the resources within ERRPCA and Englishman River watershed in general was obtained through a literature review of published and unpublished reports. We obtained information on rare and endangered species for the South Island forest district from the British Columbia Conservation Data Centre. These data were used as the basis of the species at risk overview and to identify rare species that could occur at ERRPCA.

Habitat Delineation

The 2005 digital orthophoto of ERRPCA was used as the basis for habitat delineation. Polygons of similar habitat types were delineated on the orthophoto, first by hand, and later these polygons were digitized and a shapefile was generated in our GIS. A representative sample of the various habitat types was then visited in the field to determine, and in some cases, verify the habitat association of each polygon.

Habitat delineation was based on the dominant vegetative cover or site conditions of a given polygon. For example, forest dominated polygons were classified according to leading tree species (e.g., Douglas-fir, bigleaf maple, lodgepole pine) and heavily impacted sites (e.g., the gravel pit) were characterized as disturbed sites.

Species at Risk Overview

A Species at Risk Overview was completed for ERRPCA and involved the development of a list of sensitive species (flora and fauna) that could potentially occur at ERRPCA. The initial species list was obtained from the British Columbia Conservation Data Centre, which provides access to lists of flora and fauna with current conservation designation. The initial list, derived for the South Island Forest District, was reduced through an assessment of which species were likely to occur in the park. For example, marine mammals and reptiles were removed from the list, as were species whose range is not known to include the Englishman River area.

HABITAT AND SPECIES INVENTORY

Habitat Delineation Within Park Lands

Twelve habitat types were delineated for ERRPCA (Table 1). Forest ecosystems dominate the land base of ERRPCA, with Dry Mixed Forest (DMF) covering 62.9 ha, Moist Mixed Forest covering 45.3 ha, and Mesic Second-growth Coniferous Forest covering 33.8 ha. Both the DMF and MMF are comprised of approximately equal components of coniferous and deciduous trees, with the ratio of deciduous to coniferous varying across all polygons assigned to these habitat types. A map showing the distribution of each habitat type at ERRPCA is included in Figure 2.

Table 1. Habitat codes, names, area (hectares) and percentage of total area for each habitat type delineated for ERRPCA.

Code	Ecosystem Name	Hectares	% of Total Area
DMF	Dry Mixed Forests	62.9	30.4%
MMF	Moist Mixed Forests	45.3	21.9%
SCF	Mesic Second-growth Coniferous Forest	33.8	16.3%
RC	Regenerating Cutblocks	25.7	12.4%
RF	Riverine Flats	10.4	5.0%
RI	River	9.2	4.4%
DS	Disturbed Sites	6.8	3.3%
DPF	Dry Pine Forests	4.2	2.0%
RT	Riparian Thickets	4.0	1.9%
SP	Swamps and Ponds	3.7	1.8%
FC	Forest Clearing	1.1	0.5%
EP	Ephemeral Pools	0.1	0.05%
	Total	207.2	100%

Certain habitat types (e.g., DS – Disturbed Sites) have been heavily influenced by human use and are the focus of habitat remediation opportunities, which are discussed below. Of the 12 habitat types, the recently developed side channel, built by the Department of Fisheries and Oceans in 2007, was not taken into account because the final topographic survey was not completed at the time of report writing. Future versions of this plan could quantify the area of side channel habitat once the total area and alignment of the wetted channel is known. An approximate location of the side channel is shown in plan view on the habitat map (Figure 2).

DMF – Dry Mixed Forests

This habitat type was the most abundant on the property, occurring primarily on warm, well-drained, south-facing slopes. It is characterized by an overstory dominated by Douglas-fir with varying amounts of bigleaf maple, bitter cherry, shore pine, and arbutus. The understory is typically dominated by salal, with other shrub species such as oceanspray, red huckleberry,

baldhip rose, and purple honeysuckle (*Lonicera hispidula*) also occurring. This forest type is quite open, allowing more light to reach the forest floor and subsequently a dense shrub layer has developed. Although plant diversity is not particularly high, these habitats provide moderate to good value to wildlife, both as a source of food and cover. In particular, small vertebrate and invertebrate species benefit from the protection of the dense shrub layer.

MMF – Moist Mixed Forests

This second most abundant habitat type is associated with moister soil types, and is the predominant forest habitat along the banks of the Englishman River, as well as along all smaller waterways, ponds, swamps, and wet lowlands on the property. The overstory is co-dominated by a number of tree species, with the wettest microsites being dominated by western redcedar, western hemlock, red alder, and (locally) black cottonwood, while drier areas have increased bigleaf maple, grand fir, and Douglas-fir. Sitka spruce (*Picea sitchensis*), which is considered rare in the CDFmm subzone (Meidinger and Pojar 1991), occurs locally in this habitat type along the banks of the Englishman River. The understory is typically much better-developed than in the mesic second-growth coniferous forest, although it consists of many of the same species. Grasses such as Alaska oniongrass (*Melica subulata*), fescues (*Festuca* sp.), and Columbia brome (*Bromus vulgaris*) are more conspicuous in this habitat type than in more uniform upland forests. The high diversity of plant species, moister soils, diverse canopy layer with a high percentage of deciduous species, abundance of coarse woody debris, and well-developed understory provide high value for wildlife. Red-legged frog (*Rana aurora*), a blue-listed species, requires these moist forests for foraging as adults; several individuals of this species were located on the property.

SCF – Mesic Second-growth Coniferous Forest

This habitat type occupies large portions of the upland forest, and is characterized by homogeneous, even-aged, relatively young second-growth coniferous forest with a very high percentage of Douglas-fir in the overstory. Canopy cover is high in this habitat type, often leading to a reduction in understory development. This sparse understory is occupied by scattered shrubs of salal, Oregon-grape, red huckleberry, sword fern, deer fern (*Blechnum spicant*), and, in many areas, extensive carpets of forest mosses such as Oregon beaked moss (*Eurhynchium oregonum*). Moist microsites and openings within this forest type have increased biodiversity, but overall this habitat is not considered particularly productive from an ecological standpoint. Wildlife use this habitat for cover, but the sparse understory provides few food resources. The overall homogeneity of the habitat combined with its reduced vegetation diversity and minimal structural attributes provide limited ecological value in comparison with other habitat types that are present on the property.

RC – Regenerating Cutblocks

The relatively recent logging history in some portions of the park has resulted in areas of very young regenerating forests. These areas are composed of small coniferous trees (almost all Douglas-fir) within a matrix of dense, overgrown shrubs and herbs. This extensive shrub layer consists of species such as trailing blackberry (*Rubus ursinus*), oceanspray, western trumpet honeysuckle (*Lonicera ciliosa*), red huckleberry, salal, and others, with large amounts of robust herbs such as fireweed (*Epilobium angustifolium*) and introduced thistles (*Cirsium* spp.). The dense shrub layer and open characteristics of the regenerating forest provide very high food and cover value for wildlife and birds. For example, many bird species that do not occur in forested habitats, such as White-crowned Sparrow (*Zonotrichia leucophrys*), MacGillivray's Warbler (*Oporornis tolmiei*), and Willow Flycatcher (*Empidonax traillii*) occur in these early-seral

habitats. Despite their disturbed, early successional conditions, these habitats provide critical habitat for many species that would not otherwise occur in a forested landscape.

RF – Riverine Flats

Consisting primarily of sandy to coarse sediments and cobbles deposited along the banks of the Englishman River, this habitat is unique on the property and was found to support a diverse and specific community of plants and animals. Tree species such as red alder and black cottonwood were locally established as young pioneer groves, with shrubs such as willows forming denser thickets in some areas. A number of locally unusual plant species, such as narrow-sepaled phacelia (*Phacelia leptosepala*), kinnikinnick (*Arctostaphylos uva-ursi*), and marsh paintbrush (*Castilleja hispida*) were found only in this habitat, likely the result of seed deposition from populations further upstream. The warm, coarse substrate was also found to support an unusual abundance of garter snakes (both *Thamnophis elegans* and *T. sirtalis*) relative to other habitats on the property, and songbirds such as willow flycatcher and song sparrow were found to inhabit the thickets and deciduous groves. Where perennial seepage of freshwater occurred in this habitat, flora and fauna that were reminiscent of ephemeral wetlands were established. The local and uncommon dragonfly *Cordulegaster dorsalis* (Pacific Spiketail), a species that is restricted to fluvial systems, was found only in this habitat on the property.

RI – River

The aquatic portion of the river supported a small number of species that were not otherwise associated with any other habitats. For example, birds such as belted kingfisher (*Megaceryle alcyon*), northern rough-winged swallow (*Stelgidopteryx serripennis*), spotted sandpiper (*Actitis macularia*), and common merganser (*Mergus merganser*) were specifically associated with this habitat, while other species such as American dipper (*Cinclus mexicanus*) also likely occur but were not recorded.

DS – Disturbed Sites

This habitat type occurs locally on the property along roadways and powerline rights-of-way as well as throughout the large central gravel pit area. The vegetation communities that occupy this habitat are generally composed largely or completely of exotic, introduced species that are able to out-compete native species on these very early seral sites. Species that were found in abundance in this habitat on the property include Scotch broom (*Cytisus scoparius*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), clovers (*Trifolium* sp.) and a large diversity of grasses and small annual forbs. Although the value of these habitats to wildlife is generally low, in some areas they do provide moderate cover and forage values. The red-listed butterfly species Common Wood-nymph (*Cercyonis pegala incana*) was found to be restricted to this habitat type on the property, and the only northern alligator lizard (*Elgaria coerulea*) seen during the survey was found along a weedy roadside.

DPF – Dry Pine Forests

This forest type is rare on the property and is most extensive along the main road between the gravel pit and the fish hatchery. The soils in this area are very coarse and subsequently well-drained, allowing for shore pine, which is well-adapted to grow in such poor sites, to become established as the dominant tree species. Few other tree species occur in conjunction with these shore pine forests, although Douglas-fir, bigleaf maple, and other dry-forest species may occur sporadically. The shrub layer is similar to that found in Dry Mixed Forest habitats, and is

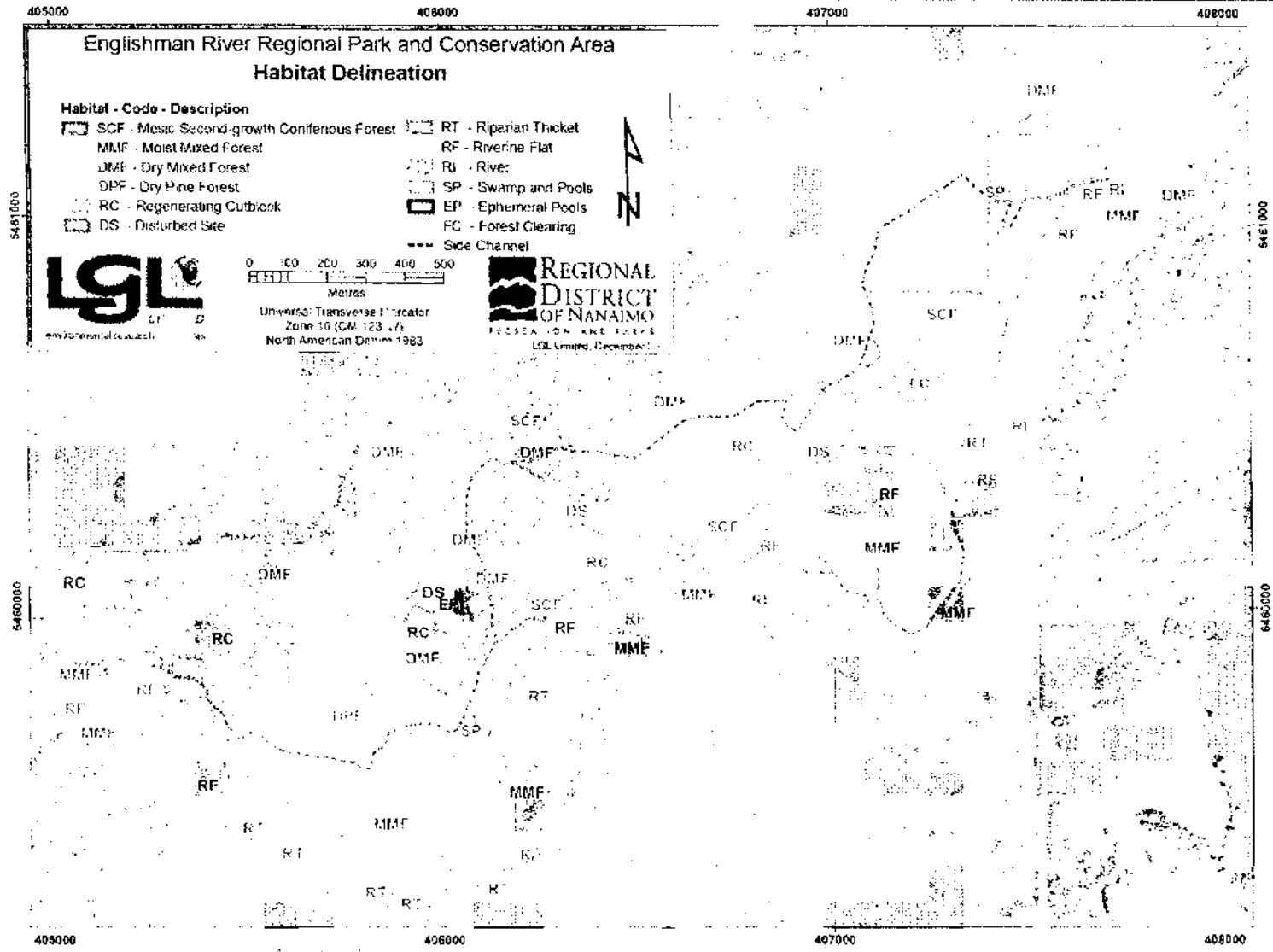


Figure 2. Habitats delineated in the ERPCA.

dominated by species such as salal, red huckleberry, oceanspray, baldhip rose, and purple honeysuckle. These forests are relatively open and, in many areas, the understory vegetation is reduced to a layer of mosses and lichens (particularly in xeric openings). A number of herb species that are more typical of very dry forested habitats occur in this habitat such as vari-leaved collomia (*Collomia heterophylla*) and Scouler's harebell (*Campanula scouler*). This habitat type provides moderate value for wildlife, and many small vertebrate and invertebrate species of drier habitats likely occur here in greater abundance than elsewhere on the property.

RT – Riparian Thickets

This diverse habitat type, which consists of a variety of moist shrub communities, occurs locally but widely throughout the property. The most extensive examples are in association with the established wetland communities. The plant composition of these habitats is variable but includes species such as Pacific crabapple (*Malus fusca*), black twinberry (*Lonicera involucrata*), cascara (*Rhamnus purshiana*), and willows (*Salix* spp.). Below the shrub layer, the herb layer is a combination of wetland species (i.e., various sedges, *Carex* spp.; reed canarygrass, *Phalaris arundinacea*) and species that are typical of moist upland sites (i.e., lady fern, *Athyrium filix-femina*). These habitats are of high value to birds and wildlife because of their location adjacent to wetlands, which provide extensive food and water resources, as well as to upland forests that provide cover. A number of bird species, including song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), and cedar waxwing (*Bombycilla cedrorum*), use these thickets extensively throughout the year.

SP – Swamps and Ponds

Several well-established wetland complexes are located on the property and offer exceptional value to wildlife as well as support unique assemblages of plants and animals. Two classes of wetlands occur in the park: grass-dominated and cattail-dominated. The grass-dominated wetlands, such as the large wetland complex in the southwestern portion of the park, had a more-or-less continuous cover of reed canarygrass (*Phalaris arundinacea*) with scattered shrubs (black twinberry, cascara, Pacific crabapple) occurring on drier humps and some small areas of open water. Cattail-dominated wetlands, such as the roadside marsh in the eastern portion of the park, have a fringing community of common cattail (*Typha latifolia*) and hardhack (*Spiraea douglasii*) around deeper open water. Aquatics such as pondweeds (*Potamogeton* species) and yellow pond-lily (*Nuphar lutea*) occur in these deeper waters, while species such as Cusick's sedge (*Carex cusickii*), blue skullcap (*Scutellaria lateriflora*), and northern water-horehound (*Lycopus uniflorus*) grow on floating woody debris and on hummocks around the edges of the wetland. These wetland communities have particularly high vegetation diversity and provide habitat and resources for a wide variety of large and small animals. Birds such as common yellowthroat, song sparrow, and mallard breed and feed in these habitats and utilize the fringing thickets for cover. Similarly, pond-breeding amphibians such as Pacific Treefrog (*Hyla regilla*) and Red-legged Frog require these wetland habitats for egg-laying.

FC – Forest Clearing

The forest clearing habitat type occurred in only one polygon and appears to have persisted across time, being first noted on the 1949 orthophoto when the habitat type appeared to be a grassy slope bordered by large coniferous trees (probably Douglas-fir). Over time, the clearing persisted and at times, was part of a logged area (1977 orthophoto). By 1984, much of the logged area had regenerated; however, the clearing continued to be void of heavy timber growth. In 1996, the clearing is again visible and it has persisted through 2007. It is not clear why this particular area

has not become forested over time, as much of the surrounding land now supports an extensive stand of second growth Douglas-fir forest.

EP – Ephemeral Pools

This habitat type is extremely rare on the property, and is essentially restricted to several remnant pools of water in the centre of the large gravel pit that gradually dry over the course of the growing season. Although these pools and the surrounding terrestrial landscape are highly disturbed habitats, a unique plant assemblage has become established on the site that is not represented elsewhere in the park. Early-successional wetland species that can tolerate heavy disturbance, including common cattail, common spike-rush (*Eleocharis palustris*), blunt spike-rush (*Eleocharis obtusa*), and spike bentgrass (*Agrostis exarata*) grow in profusion in and around the silty water. This habitat was found to provide habitat for some pond-breeding amphibians, particularly Pacific Treefrogs, as well as garter snakes.

Species at Risk Overview

As a result of an increasing awareness of the plight of biodiversity in British Columbia and Canada, ranking schemes have been developed at both the national (Committee on the Status of Endangered Wildlife in Canada [COSEWIC]) and provincial (British Columbia Conservation Data Centre [BC CDC]) levels which assess the current status of threatened or endangered species and provide them with a sensitivity ranking (Table 2). These ranking schemes allow conservationists and biologists to focus their efforts on species that are rare or declining and facilitates further inventory of these species by highlighting their status.

Table 2. Explanation of the ranks used by COSEWIC and the BC CDC when assessing the status of endangered species in Canada and British Columbia, respectively.

National Status (COSEWIC)	
Extinct (X)	No longer known to exist anywhere
Extirpated (XT)	No longer known to exist in the wild in Canada, but known to exist elsewhere
Endangered (E)	Threatened with immediate extinction or extirpation through all or a significant portion of its range, owing to the act of humans
Threatened (T)	Likely to become endangered in Canada if conditions are not reversed
Special Concern (SC)	May become threatened or endangered because of a combination of biological characteristics and identified threats
Data Deficient (DD)	Available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction
Not at Risk (NAR)	Not at risk of extinction given the current circumstances
Provincial Status (BC CDC)	
Red	Species is endangered or threatened under the <i>Wildlife Act</i> , is extinct, is extirpated, or is a candidate for these designations
Blue	Species is not immediately threatened, but is of concern because of characteristics that makes it particularly sensitive to human activities or natural events
Yellow	Species is uncommon to common, declining or increasing but is not a candidate for the red or blue lists

The landscape of southern Vancouver Island is diverse and unique. The convergence of dry climates and wet climates, mountainous areas and lowlands, and terrestrial and marine environments has created one of the most biologically rich regions in Canada, harbouring many species which occur nowhere else in the country or, in some cases, the world. Human development and resource extraction, however, have fragmented the habitats of southern Vancouver Island and had significant impacts on a number of threatened or endangered species. Indeed, several of these imperiled species have been lost from the region which, for some, represented their only toehold in the country. The combination of biological uniqueness and development pressures have resulted in a particularly high number of species of concern occurring on southern Vancouver Island.

Vertebrate and Invertebrate Animals

The South Island Forest District is home to many species with federal or provincial status as "Species at Risk." A total of 82 threatened or endangered species of 7 species groups occur in this region, including 11 mammals (including marine mammals), 26 birds, 6 reptiles and amphibians, 5 freshwater fish, 15 butterflies, 5 dragonflies, and 12 terrestrial molluscs (Figure 3). Other species groups have not yet been ranked and it is expected that many more endangered species from these groups occur in this region.

Based on these species lists, a ranking system was developed that would specifically identify the probability of each of these threatened or endangered species occurring in Englishman River Regional Park. This exercise ranked the probability of each species occurring in the park as Not Expected, Possible, Probable, or Confirmed, based on the habitats present and the species' known distribution on southern Vancouver Island.

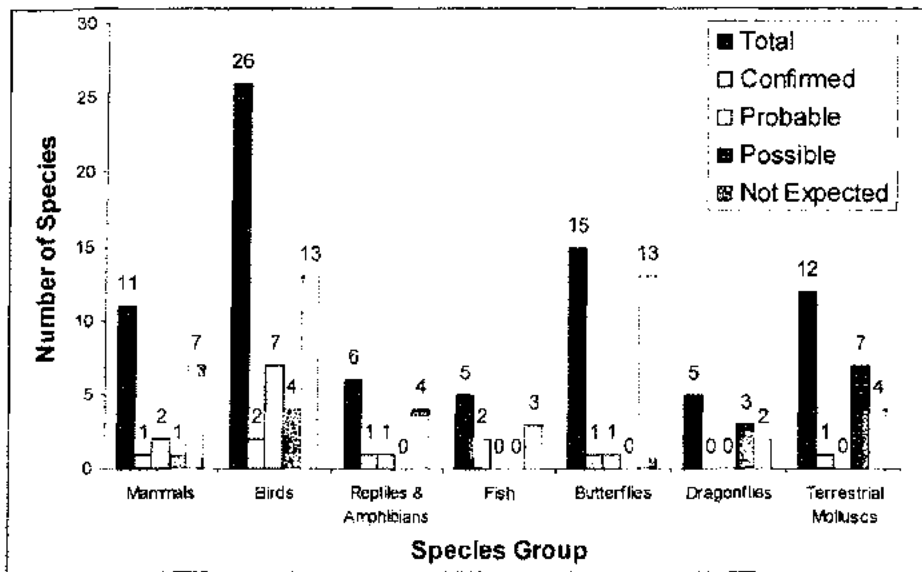


Figure 3. The number of threatened and endangered animal species on southern Vancouver Island and their probability of occurring in ERRPCA.

The Confirmed, Probable, and Possible species comprise the **Valued Ecosystem Components** of this analysis, which are listed in Table 3 and described in detail in the next section. This allows us to screen out the species that are not expected in the watershed and instead focus on those species that have at least some potential to occur.

Vascular Plants

The unique biodiversity of southern Vancouver Island includes flora as well as fauna, and a high percentage of the plant species occurring in the region are similarly threatened by development and other land use practices. For example, the BC CDC (2007) lists a total of 167 rare vascular plant taxa (species and subspecies) from the South Island Forest District, including 88 blue-listed and 79 red-listed taxa. The centre of diversity of these rare species is the east coast of southern Vancouver Island and the Gulf Islands, including areas north to Campbell River. Although no rare plant taxa have been documented from the ERRPCA as of 2007, some species may have gone undetected during the June and August field surveys. Some of the following additional rare plant taxa may occur in the park, based on the habitats available and the presence of these species in areas of similar habitat adjacent to the park.

<i>Anagallis minima</i>	<i>Montia diffusa</i>
<i>Aster radulinus</i>	<i>Myriophyllum quitense</i>
<i>Bidens amplissima</i>	<i>Myriophyllum ussuriense</i>
<i>Callitriche heterophylla</i> ssp. <i>heterophylla</i>	<i>Nothochelone nemorosa</i>
<i>Ceratophyllum echinatum</i>	<i>Piperia candida</i>
<i>Claytonia washingtoniana</i>	<i>Pleuropogon refractus</i>
<i>Epilobium ciliatum</i> ssp. <i>watsonii</i>	<i>Polygonum hydropiperoides</i>
<i>Epilobium halleanum</i>	<i>Potamogeton oakesianus</i>
<i>Glyceria leptostachya</i>	<i>Pyrola elliptica</i>
<i>Hypericum scouleri</i> ssp. <i>nortoniae</i>	<i>Rupertia physodes</i>
<i>Juncus occidentalis</i>	<i>Sparganium fluctuans</i>
<i>Juncus oxymetris</i>	<i>Viola howelli</i>
<i>Mitella caulescens</i>	

Significant Observations

Several observations of note were made during the June and August field sessions. Two blue-listed bird species, Purple Martin (*Progne subis*) and Band-tailed Pigeon were observed on the property. Purple Martins were heard vocalizing above the tree canopy at two locations: over the regenerating cutblock at the west end of the park, and along the powerline right-of-way south of the main road. The nearest breeding colony of these birds is in Nanoose Bay, where a number of pairs breed in nest boxes placed atop pilings in the harbour. This species wanders widely during the day in search of food and it is suspected that the flying insect populations that are generated by the wetlands of the ERRPCA provide a significant food source for this species during the summer months.

Band-tailed Pigeons, although blue-listed, have rebounded significantly in the past several decades on Vancouver Island following significant hunting-related population declines in the 1900s. The species is now fairly common to very common across much of the island, including in The ERRPCA, where we detected this species at a variety of locations within the park. This species is most numerous in mixed-wood forests, such as the type that are widespread within the park, and nesting undoubtedly occurs regularly in the area.

Red-legged Frogs (*Rana aurora*) were found at several locations within the park, usually in the understory of moist, mixed forest types. This species is blue-listed in B.C. and is considered vulnerable to habitat degradation and loss due to urbanization and industrial or resource-extraction activities. The wetlands of the property provide excellent breeding habitat for this pond-breeding species and it is expected that the populations inhabiting the property are robust and healthy. This frog population likely helps to maintain some of the large populations of garter snakes that were found on the property, such as those along the sandy riverine flats of the Englishman River. In addition to the Red-legged Frogs, the discovery of a small population of

several introduced Green Frogs (*Rana clamitans*) along the banks of the Englishman River is considered to be significant since this species is known only sporadically from the Coombs area (Matsuda et al. 2006) and this may represent a previously unknown occurrence of the species on central Vancouver Island.

Another blue-listed species which was found to be common and widespread in the park is the large snail *Monadenia fidelis*. This species was found at numerous locations within moist to mesic habitat conditions throughout the upland portions of the park. It is estimated that more than 20 individuals were observed over the course of the two field sessions, and in almost all portions of the park that were visited.

The only other invertebrate of conservation concern that was detected in the park was the rare butterfly *Cercyonis pegala incana* (Common Wood-nymph). This coastal subspecies of this otherwise widespread and common North American butterfly was found in ruderal, grassy, weedy habitats along the main park road, near the former river ford location. This species was detected only during the August field session, which corresponds with its late-summer flight season. This species is expected to occur more widely in the park due to the presence of large areas of suitable habitat that were not surveyed during the August field session (i.e., the powerline right-of-way).

A list of all flora and fauna observed in the ERRPCA in 2007 can be found in Appendices A through F.

Valued Ecosystem Components

The following section outlines the distribution and ecology of the species with federal or provincial conservation status that are known or suspected to occur in the ERRPCA (Table 3).

Vertebrates

Vancouver Island Water Shrew (*Sorex palustris brooksi*)

This subspecies of the wide-ranging Water Shrew is endemic to Vancouver Island and occurs nowhere else in the world. It is weakly differentiated from mainland individuals of the species by its darker colour (Nagorsen 1996). This animal is typical of wet habitats, particularly near fast-flowing streams, and is found in areas where there are rocks, boulders, tree roots, and overhanging ledges along the edge of the watercourse. Other habitats that are occupied include wet meadows, riparian thickets, and bogs. This species preys primarily on aquatic insects and terrestrial invertebrates, but has also been known to consume amphibian larvae, carrion, and even small fish which it captures by diving underwater for up to 47 seconds at a time (Nagorsen 1996). The *brooksi* subspecies is extremely poorly known, and up until 2001 was known from only 11 specimens (Craig and Wilson 2001). That year, however, targeted surveys at numerous locations around Vancouver Island documented an additional 27 locations for this enigmatic animal (Craig and Wilson 2001). During this study, Vancouver Island Water Shrews were detected at 5 sites within the vicinity of Coombs and Errington, including areas of the upper Morrison Creek watershed to the west of the ERRPCA. Numerous examples of suitable habitat for this species exist in the park, including forested creeks and well-vegetated wetlands, and it is expected that one or more populations of this animal may occur in association with these water features. Additional surveys targeting small mammals would be needed to confirm the species' presence in the park.

Table 3. Valued Ecosystem Components of Englishman River Regional Park.

Species	Scientific Name	Species Group	Prob. of Occurrence	COSEWIC ¹	CDC ²
Vancouver Island Water Shrew	<i>Sorex palustris brooksi</i>	Mammal	Probable		Red
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Mammal	Probable		Blue
Vancouver Island Ermine	<i>Mustela ermina anguinae</i>	Mammal	Possible		Blue
Roosevelt Elk	<i>Cervus canadensis roosevelti</i>	Mammal	Confirmed		Blue
Green Heron	<i>Butorides virescens</i>	Bird	Possible		Blue
Great Blue Heron, <i>fannini</i> ssp.	<i>Ardea herodias fannini</i>	Bird	Probable	SC	Blue
Canada Goose, <i>occidentalis</i> ssp.	<i>Branta canadensis occidentalis</i>	Bird	Possible		Blue
Northern Goshawk, <i>laingii</i> ssp.	<i>Accipiter gentilis laingii</i>	Bird	Probable		Blue
Peregrine Falcon, <i>anatum</i> ssp.	<i>Falco peregrinus anatum</i>	Bird	Possible		Red
Peregrine Falcon, <i>pealei</i> ssp.	<i>Falco peregrinus pealei</i>	Bird	Probable	SC	Blue
Sandhill Crane	<i>Grus canadensis</i>	Bird	Probable		Blue
Band-tailed Pigeon	<i>Patagioenas fasciatus</i>	Bird	Confirmed		Blue
Western Screech-Owl, <i>kennicottii</i> ssp.	<i>Megascops kennicottii kennicottii</i>	Bird	Probable	SC	Blue
Northern Pygmy-Owl, <i>swarthi</i> ssp.	<i>Glaucidium gnoma swarthi</i>	Bird	Probable		Blue
Purple Martin	<i>Progne subis</i>	Bird	Confirmed		Blue
Barn Swallow	<i>Hirundo rustica</i>	Bird	Probable		Blue
Pine Grosbeak, <i>carlottae</i> ssp.	<i>Pinicola enucleator carlottae</i>	Bird	Possible		Blue
Red-legged Frog	<i>Rana aurora</i>	Amphibian	Confirmed		Blue
Western Toad	<i>Bufo boreas</i>	Amphibian	Probable	SC	Yellow
Cutthroat Trout	<i>Oncorhynchus clarki clarki</i>	Fish	Confirmed		Blue
Dolly Varden	<i>Salvelinus malma</i>	Fish	Confirmed		Blue
Western Pine Elfin, <i>sheltonensis</i> ssp.	<i>Callophrys eryphon sheltonensis</i>	Butterfly	Probable		Blue
Common Wood-nymph, <i>incana</i> ssp.	<i>Cercyonis pegala incana</i>	Butterfly	Confirmed		Red
Western Pondhawk	<i>Erythemis collocata</i>	Dragonfly	Possible		Blue
Blue Dasher	<i>Pachydiplax longipennis</i>	Dragonfly	Possible		Blue
Autumn Meadowhawk	<i>Sympetrum vicinum</i>	Dragonfly	Possible		Blue
Western Thorn	<i>Carychium occidentale</i>	Mollusc	Possible		Blue
Evening Fieldslug	<i>Deroceras hesperium</i>	Mollusc	Possible		Red
Pacific Sideband	<i>Monadenia fidelis</i>	Mollusc	Confirmed		Blue
Threaded Vertigo	<i>Nearctula</i> sp.1	Mollusc	Possible		Red
Broadwhorl Tightcoil	<i>Pristiloma johnsoni</i>	Mollusc	Possible		Blue
Scarletback Taildropper	<i>Prophysaon vanatatae</i>	Mollusc	Possible		Blue
Pacific Vertigo	<i>Vertigo andrusiana</i>	Mollusc	Possible		Red
Black Gloss	<i>Zonitoides nitidus</i>	Mollusc	Possible		Blue

¹ COSEWIC = Committee on the Status of Endangered Wildlife in Canada; SC = Special Concern² CDC = Conservation Data Centre

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

The river, creeks, and wetlands of the ERRPCA provide excellent foraging habitat for a variety of bat species, including the Townsend's Big-eared Bat, while the adjacent forests provide roosting habitat for the animals during the day. This small, highly distinctive bat occurs locally in Canada only on southern Vancouver Island (north at least to Comox) and across southern B.C. where it inhabits a wide variety of habitats, from coastal forests to dry interior grasslands (Nagorsen and Brigham 1993). This species roosts colonially during the winter in caves and buildings, with known winter roosts in southwestern British Columbia generally containing between 40-60 animals (Nagorsen and Brigham 1993). The local distribution of the species, coupled with its reliance on relatively few overwintering sites, renders it susceptible to disturbance from human activities and subsequent population reductions. Although it likely occurs in the park, nocturnal bat monitoring and possible mist-netting would be required to confirm its presence.

Vancouver Island Ermine (*Mustela ermina anguinae*)

This endemic, little-known subspecies of the widespread Ermine occurs only on Vancouver Island, where it is scarce and only rarely seen. Despite its current scarcity on Vancouver Island, however, it occurs widely throughout forested regions of the island. This species inhabits a broad diversity of landscapes, especially riparian areas, where it searches for the small mammals such as voles, shrews, and mice which it preys on. The relatively low density of potential prey animals on Vancouver Island may be responsible for the overall scarcity of the Vancouver Island Ermine (Cannings et al. 1999). Although habitat fragmentation from urban and agricultural development probably poses the greatest threat to this animal on Vancouver Island, the effects of large-scale timber harvest on prey populations is not known and may be detrimental (Cannings et al. 1999). The habitats that exist within the ERRPCA appear to be suitable for this species, but the very low density of the animals and the highly fragmented landscapes surrounding the park may prevent the animals from dispersing into the park from source populations in more remote areas to the west.

Roosevelt Elk (*Cervus canadensis roosevelti*)

The Roosevelt Elk numbers only 3400-3500 animals in British Columbia, of which 3000-3200 occur on Vancouver Island with the rest restricted to small, mostly re-introduced herds on the southern mainland coast (Shakleton 1999; Cannings et al. 1999; Blood 2000). These animals inhabit a range of coniferous or deciduous forested habitats, particularly in areas near wetland, riparian habitats, and other moist or brushy sites with an abundance of potential forage and cover plants (Cannings et al. 1999). Populations of this coastal subspecies of Elk have been significantly impacted by a number of factors such as overharvest, poaching, human settlement, and resource extraction activities and have been locally extirpated from a number of areas of southern Vancouver Island (including the Gulf Islands) as well as the Lower Mainland and most of the southern mainland coast (Cannings et al. 1999). Despite their scarcity on southern Vancouver Island, Englishman River Park is known to harbour a population of Roosevelt Elk.

Great Blue Heron (*Ardea herodias fannini*)

Although still a common component of the avifauna of Vancouver Island, recent declines coupled with the species' sensitivity to human disturbance at its nesting colonies have resulted in the placement of this coastal subspecies of the Great Blue Heron on the provincial blue list (Gebauer and Moul 2001). This colonial species requires forested groves located near freshwater or marine habitats for nesting, where it places its stick nests high in the branches, usually in well-concealed locations within the trees (Gebauer and Moul 2001). This species occurs regularly throughout the Parksville-Qualicum region, both in marine and freshwater habitats. Although it has not been

shown to nest in the park, it likely uses the freshwater habitats for foraging on frogs, fish, and even small mammals.

Green Heron (*Butorides virescens*)

This species spread naturally north along the Pacific coast during the past century and was first detected on Vancouver Island as recently as 1963 (Fraser and Ramsey 1996). Today it occurs in small numbers along the east coast of Vancouver Island (north to Campbell River) and in the Lower Mainland, where it is found primarily in quiet, brushy wetlands such as rivers, sloughs, ponds, and marshes with abundant vegetation present (Campbell et al. 1990). The current population in British Columbia is estimated by Fraser and Ramsey (1996) as containing fewer than 500 pairs, and they show that fewer than 50 pairs are known from regularly-used breeding sites. Although it is unlikely to occur as a breeder or even as a regular non-breeder in the ERRPCA, the wooded wetlands that are present in the park may provide habitat for occasional birds, particularly juveniles during the late summer-fall period when they wander widely before migrating south to the western United States.

Canada Goose (*Branta canadensis occidentalis*)

This dark, north-coastal subspecies of the common and well-known Canada Goose breeds locally in coastal areas of southeast Alaska, including the Copper River delta and some of the islands in the Gulf of Alaska and Prince William Sound, and winters in the Willamette Valley and lower Columbia River valley in southwest Washington and northwest Oregon (Mowbray et al. 2002). Although it doesn't breed in B.C., it does migrate through coastal areas of the province in both spring and fall and is fairly common along the west coast of Vancouver Island at this time. However, because of an overall low global population (fewer than 20,000 individuals as of 2001 [Mowbray et al. 2002]) and the importance of coastal British Columbia as a migration stopover site, it has been given a non-breeding rank on the provincial blue list. During its time in B.C., this subspecies relies heavily on coastal/marine habitats such as mudflats and estuaries and, as such, its occurrence in the ERRPCA would likely be peripheral. Nonetheless, the small wetlands that are present could potentially provide stopover habitat for this subspecies during both spring and fall migration, particularly for single birds or small flocks that associate with flocks of local resident Canada Geese.

Northern Goshawk (*Accipiter gentilis laingii*)

This dark subspecies of the Northern Goshawk is restricted as a breeding bird to the Queen Charlotte Islands, Vancouver Island, the central and northern mainland coast of B.C., and some areas of southeastern Alaska (Squires and Reynolds 1997). Recent surveys have documented relatively few nests in B.C., such as surveys in the mid-1990s that documented approximately 30 nests between Vancouver Island and the Queen Charlotte Islands (Fraser et al. 1999). It is a bird of mature and old growth coniferous forests throughout its range (Fraser et al. 1999) and, as a result, often occurs at low densities and widely scattered across the landscape. It ranges far from the nest site during foraging trips, though, and can be found hunting prey such as medium-sized birds and mammals along forest edges and in riparian areas (Fraser et al. 1999). It is likely that this species occurs sporadically in the ERRPCA, although there is no significant amount of suitable nesting habitat present. Any individuals that frequent the park would probably occur during the spring or fall migratory periods that were not sampled during this study.

Peregrine Falcon, *anatum* subspecies (*Falco peregrinus anatum*)

This subspecies is Red-listed in British Columbia, where it is restricted as a breeding bird to southeastern Vancouver Island, the Gulf Islands, the Lower Mainland, and a few scattered aeries across the southern interior (Fraser et al. 1999). Fraser et al. (1999) list the population of southeastern Vancouver Island and the Gulf Islands as containing only 7 pairs, although this

number has likely increased slightly during the past 8 years due to significant recovery efforts. This subspecies was formerly much more common and widespread in British Columbia and across much of North America, but massive population declines in association with pesticide contamination reduced the number of breeding pairs to a fraction of what formerly occurred. This raptor nests on cliffs and ledges in southwestern B.C., usually near areas with large bird populations that act as a prey source (Fraser et al. 1999). There is no breeding habitat and only limited foraging habitat available in ERRPCA. However, occasional birds may occur in the park during foraging sessions from nesting areas in the Gulf Islands, and occasional birds (mostly juveniles) may occur during post-breeding dispersal or during fall migration.

Peregrine Falcon, *pealei* subspecies (*Falco peregrinus pealei*)

This subspecies designation refers to the dark forms of Peregrine Falcon that inhabit coastal regions of northwest Washington, British Columbia, and southern Alaska west to the Aleutian Islands (White et al. 2002). This subspecies of Peregrine Falcon is largely a bird of marine areas of the Pacific coast, usually nesting atop steep cliffs in close association with seabird colonies that provide the bulk of its diet (White et al. 2002). Migratory birds, though still largely associated with coastal areas, will range farther inland to areas where shorebirds and waterfowl congregate, such as lakes and agricultural fields. Since these prey species, particularly waterfowl, are known to inhabit the areas around ERRPCA it is likely that the area could provide habitat for this subspecies of the Peregrine Falcon on occasion, particularly during the migratory periods in spring and fall.

Sandhill Crane (*Grus canadensis*)

Although not known as a breeding species on southern or central Vancouver Island, a large migration of Sandhill Cranes regularly passes through the region in spring and, especially, fall (Campbell et al. 1992; Tacha et al. 1992). During migration, most Sandhill Cranes pass through southern Vancouver Island without stopping, heading instead for large stopover sites in Alaska, Washington, and Oregon (Tache et al. 1992). Occasionally, however, particularly during inclement weather conditions or during the night, small groups of individuals will spend some time on the ground where they require large, open habitats such as meadows, fields, and estuaries for feeding and resting (Tacha et al. 1992). It is expected that flocks of Sandhill Cranes regularly pass over ERRPCA during migration, but few if any likely stop in the park due to a lack of suitable open habitats.

Band-tailed Pigeon (*Patagioenus fasciata*)

This shy, forest-dwelling pigeon is widespread throughout Vancouver Island and was recorded during both the June and August survey sessions in the park, where it almost certainly breeds. It generally frequents low to middle elevation coniferous and mixed forests in our region during the breeding season, especially in areas with an abundance of fruiting shrubs, with some flocks moving to higher elevations in late summer and fall in preparation for migration (Keppie and Braun 2000). The Coombs and Errington area is also known to support small numbers of Band-tailed Pigeons during the winter months, although they are seen only rarely. The depressed populations of this species in the Pacific Northwest, and its subsequent placement on the provincial blue list, is largely the result of overharvest during the 1900s; harvest of this species in British Columbia has been closed since the 1990s as a result of these declines (Keppie and Braun 2000) and, in many areas, populations have rebounded significantly.

Western Screech-Owl (*Megascops kennicottii kennicottii*)

This coastal subspecies of the Western Screech-Owl occurs along the mainland coast of British Columbia, as well as on Vancouver Island and south through much of the western United States and northern Mexico (COSEWIC 2002a). In the Pacific Northwest, this species is associated with

a variety of low-elevation forests (coniferous, mixed, deciduous), especially in more open forest types and in riparian woodlands (COSEWIC 2002a). It is dependent on an abundance of snags that provide a suitable location for nest cavities (COSEWIC 2002a). Although it was formerly common throughout Vancouver Island, and historically the most common small owl on the southeast coast of the island, populations of the Western Screech-Owl have plummeted during the past 20 years from Campbell River south to Sooke (COSEWIC 2002a). The species is still relatively common on northern and western Vancouver Island, and near or at historic levels along the mainland coast north of Vancouver Island, but a combination of development, forestry practices, and (most importantly) heavy predation by the recently-arrived Barred Owl (*Strix varia*) have contributed to massive declines throughout the Georgia Depression (COSEWIC 2002a). Nonetheless, this species still may occur in the park since much suitable habitat occurs, although the sighting of Barred Owls in the park during the August field session casts some doubt on the ability of the park to provide sanctuary for this species. Targeted nocturnal owl surveys in early spring would be required to determine if Western Screech-Owls are present in ERRPCA and to provide an estimate of the density of predatory Barred Owls in the area.

Northern Pygmy-Owl (*Glaucidium gnoma swarthi*)

This subspecies of the Northern Pygmy-Owl, which is noticeably darker than other subspecies, is endemic to Vancouver Island and occurs nowhere else in the world (Darling 2003). It is generally uncommon throughout the island, from low elevation forests to subalpine areas, and occurs in a wide variety of habitat types including dense old-growth coniferous forests, open woodlands, young regenerating forests, and even recent clearcuts (Darling 2003). The species occasionally ventures into suburban habitats during the winter and is sometimes drawn to bird feeding stations where it preys on the small songbirds that are attracted by the station (J. Fenneman, pers. comm.). Some localized declines of this subspecies have been noted on Vancouver Island, such as in the Comox area, and overall island-wide declines are suspected (Darling 2003). This species is still regularly detected in the Parksville-Qualicum area, however, and likely occurs in ERRPCA on occasion.

Purple Martin (*Progne subis*)

The Purple Martin is one of the greatest conservation success stories in British Columbia. Formerly a regular and widespread breeder throughout the Georgia Depression, competition with introduced European Starlings (*Sturnus vulgaris*) reduced the provincial population to a low of 3-5 pairs by the mid-1980s (J.C. Finlay, pers. comm.). Through an innovative nest box program, the provincial population now numbers at around 600 pairs (J.C. Finlay, pers. comm.). The species is still limited in distribution by the availability of human-created nesting colonies, the closest one to ERRPCA being at Nanoose Bay, but these birds wander widely during hunting forays and, as a result, were detected at two locations in the park during the June field session. Nesting colonies occur over sheltered marine waters where nest boxes are placed atop poles, often in association with wharves, docks, or other structures. Foraging birds feed on flying insects over wetlands, open meadows, and above the forest canopy, often far from the nesting colonies. This species likely occurs widely throughout the park during the breeding and migratory periods, feeding above both forested and open habitats.

Barn Swallow (*Hirundo rustica*)

One of the most widespread bird species in the world, occurring on all continents except Antarctica, this species is common throughout most of North America (Brown and Brown 1999). This species nests largely on man-made structures such as buildings, barns, and bridges, although it will also place its mud nest in natural locations such as cliffs (Brown and Brown 1999). Foraging birds occur in a wide range of open habitats, including agricultural areas, beaches, meadow, estuaries, ponds, and lakes. Although the species has been increasing in the United

States since the 1960s, populations throughout Canada have been declining during the same period (Brown and Brown 1999). Some sources have suggested that these northern populations are more affected by adverse weather conditions and therefore show a greater degree of population fluctuation than populations to the south (Brown and Brown 1999). Nonetheless, the Barn Swallow remains a common summer inhabitant of southern Vancouver Island and, although it was not recorded during the 2007 field sessions, certainly occurs in ERRPCA during the breeding and migratory seasons.

Pine Grosbeak (*Pinicola enucleator carlottae*)

Most individuals of this dark coastal subspecies of the Pine Grosbeak breed on the Queen Charlotte Islands, although localized breeding may occur on the northern mainland coast (Adkisson 1999) and northern Vancouver Island (G. Monty, pers. comm.). This species requires open boreal or montane/subalpine coniferous or mixed forests for breeding, with coastal populations often occurring in areas of alder (*Alnus* sp.), especially above treeline (Adkisson 1999). Wintering individuals wander widely, however, and are often found in parks, wooded suburban areas, lowland forests, and other habitats not frequented by breeding birds, particularly where there is an abundance of food plants such as mountain-ash (*Sorbus* sp.), ash (*Fraxinus* sp.), and maple (*Acer* sp.) (Adkisson 1999). This species is rarely encountered on southern Vancouver Island at any time of year, although the number of individuals of this highly irruptive species recorded in the region does vary significantly from year-to-year. This species has been occasionally recorded from the Parksville-Qualicum area in winter, although its presence in the region is considered marginal. It is possible that the subspecies recorded in the region was not *carlottae* but instead was a more widespread interior subspecies such as *montanus*, or even the subspecies *flamula* that breeds in southeast Alaska and northwest British Columbia; however, since the subspecific identity of the birds was not determined, they are assumed to have possibly belonged to the subspecies *carlottae*.

Red-legged Frog (*Rana aurora*)

This blue-listed species occurs widely, but locally, in southwestern BC, including Vancouver Island (Matsuda et al. 2006). It breeds in shallow forest pools, slow woodland streams, and along the shallow edges of forested lakes and ponds (Matsuda et al. 2006). It wanders widely as an adult, often venturing far from water into moist, forested upland habitats where it feeds on insects and other small invertebrates (Matsuda et al. 2006). This species was recorded at a number of locations in the park during the survey and is thought to breed in the wetlands of the property.

Western Toad (*Bufo boreas*)

This widespread and formerly common species has recently undergone significant population reductions throughout its Canadian and United States range, and is now classified as a species of Special Concern by COSEWIC (COSEWIC 2002b). Populations on the southwest coast of British Columbia, including Vancouver Island, appear to be experiencing some of the sharpest declines in the country (COSEWIC 2002b). Although a single cause for the decline has not been discovered, a number of causes such as habitat loss and subsequent population fragmentation, disease, and deformities (COSEWIC 2002b). This species requires small pools or ponds, preferably with a sandy bottom, for breeding and wanders widely in upland areas as an adult, returning to traditional breeding ponds to lay their eggs (Matsuda et al. 2006). Although it was not documented in the park during 2007, there are suitable habitats in ERRPCA for Western Toads and the species may be present in very small numbers.

Cutthroat Trout (*Oncorhynchus clarki clarki*)

This trout is widespread as a native species throughout much of northwestern North America, and occurs in both resident freshwater and migratory anadromous populations (Froese and Pauly

2007). It is restricted to watersheds which drain into the Pacific Ocean from south-central Alaska to northern California (Froese and Pauly 2007; BC CDC 2007), and is usually found within 150 km of the ocean (BC CDC 2007). It typically occurs in small, low gradient coastal streams and estuarine habitats with a water temperature below 18°C (BC CDC 2007). Cutthroat trout occur commonly throughout the Englishman River system (Gaboury 2003).

Dolly Varden (*Salvelinus malma*)

This species of char is native to the northwest coast of North America from Alaska south to Washington (Puget Sound), as well as in the coastal areas of northeastern Asia, and occurs both as resident freshwater populations and as anadromous populations (Froese and Pauly 2007). This species is still widespread in coastal B.C., including Vancouver Island, but has seen some populations impacted by urbanization, dam construction, industrial activity, road building, forestry practices, and over-fishing. Dolly Varden are found upstream of the anadromous barrier in the Englishman River system (Higman et al. 2003).

Invertebrates

Western Pine Elfin (*Callophrys eryphon sheltonensis*)

The coastal subspecies of this small butterfly is restricted in Canada to southeastern Vancouver Island, the Gulf Islands, and the Lower Mainland. It is dependent on Shore Pine (*Pinus contorta* var. *contorta*) and, to a lesser extent, introduced ornamental pines as a larval food plant (Guppy and Shepard 2001). Shore Pine has a localized distribution of southern Vancouver Island and, not surprisingly, so does the Western Pine Elfin. This species can occur anywhere where its larval food plant grows, however, and its presence in outer coastal areas of western Washington indicates that it can occur in habitats that are away from the dry, rainshadow zone where it has been documented on Vancouver Island. Shore Pines were documented from several areas of ERRPCA, including one large area west of the gravel pit, and targeted searches during the spring flight period of this butterfly may reveal one or more populations in the park.

Common Wood-nymph (*Ceryonis pegala incana*)

This Red-listed subspecies of the Common Wood-nymph is restricted in British Columbia to eastern Vancouver Island (Nanaimo north to Campbell River) and several locations on the Sunshine Coast of the southern mainland coast (Guppy and Shepard 2001). It is a species of grassy, often weedy habitats such as roadsides, powerline rights-of-ways, old fields, and other open sites. The flight period of this species is in the late summer, from late July or early August into September (Guppy and Shepard 2001). At least three individuals of this butterfly were encountered in the park during the August field session, and more extensive targeted searches of appropriate habitat (i.e., the powerline right-of-way) would likely yield additional individuals.

Western Pondhawk (*Erythemis collocata*)

This medium-sized, brightly coloured dragonfly is distributed locally in southern BC, where it is restricted to southeastern Vancouver Island, the southern mainland coast, and one population in the Okanagan Valley (Cannings 2002; Klinkenberg 2006). It is characteristically found in and around ponds and marshy lakes, particularly in association with floating plants (Cannings 2002). Although it is distributed locally within the dry southeastern portion of the island, recently discovered populations away from this region (i.e., Courtenay) (J. Fenneman, pers. comm.) suggest the possibility of a wider distribution in moister climates, such as those of ERRPCA.

Blue Dasher (*Pachydiplax longipennis*)

The Blue Dasher, a relatively small dragonfly, is locally distributed in south coastal British Columbia and the Okanagan Valley (Cannings 2002). Although it is most abundant in the drier

climates of southeastern Vancouver Island, the species has also been recorded on northern and western portions of the island in decidedly wetter and cooler climates (Klinkenberg 2006). This species inhabits a wide variety of freshwater habitats but is most common in areas with an abundance of emergent vegetation (Cannings 2002). The Blue Dasher is considered a potential inhabitant of the ERRPCA based on its presence in areas.

Autumn Meadowhawk (*Sympetrum vicinum*)

This small, red dragonfly is uncommon and local across southern British Columbia, including areas of southern Vancouver Island (Cannings 2002; Klinkenberg 2006) where the distribution of populations is closely correlated with the warm, dry southeastern lowlands (Klinkenberg 2006). This species breeds in ponds, slow streams, and lakes where there is prolific emergent vegetation (Cannings 2002). Since mapped occurrences of this species approach the Englishman River (Klinkenberg 2006), and since appropriate habitat is known to exist in the park, it is suspected that the area may harbour populations of this uncommon dragonfly.

Western Thorn (*Carychium occidentale*)

This tiny land snail is restricted to coastal habitats from southern Vancouver Island and the Lower Mainland south to northern California as well as inland in Washington and Idaho (Forsyth 2004). Within this region, it occurs sporadically in the leaf litter of rich, relatively undisturbed low-elevation forests, usually in areas with abundant Bigleaf Maple (*Acer macrophyllum*) in the overstory (Forsyth 2004). The forests inhabited by this snail in British Columbia all contain a deep, rich, moist litter layer and are not subjected to annual flooding (BC CDC 2007). The effects of logging practices and human development on these forests on Vancouver Island has likely impacted populations of Western Thorn on Vancouver Island and this species is on the provincial blue list as a result (BC CDC 2007). Although the nearest known populations are in the Gulf Islands, the Englishman River region contains areas where Bigleaf Maple grows in association with other tree species and, as such, may contain small populations of this rare snail.

Evening Fieldslug (*Deroceras hesperium*)

This rare slug is known in Canada from only a single historical (1887) specimen from Comox on eastern Vancouver Island (BC CDC 2007). Within its native range, which extends south along the coast to Oregon, it is characteristic of moist forests in the coastal fog-belt as well as mature Douglas-fir forests, the destruction of which may have resulted in significant population reductions on Vancouver Island (BC CDC 2007). Specific habitats inhabited by this species in the Pacific Northwest include low-elevation mixed forests with high humidity and continuous understory cover in Washington, although the general ecology of this localized species is very poorly known throughout its range (Forsyth 2004; BC CDC 2007). Although this species is certainly extremely rare, or possibly extirpated, on Vancouver Island, appropriate habitat remains in the Englishman River region and, since terrestrial molluscs have been incompletely surveyed in the area, it is possible that this species will occur in the watershed.

Pacific Sideband (*Monadenia fidelis*)

This large coastal snail, which occurs in southeast Alaska as well as along the Pacific coast of the Pacific Northwest (Forsyth 2004), is restricted in British Columbia to Vancouver Island, the Gulf Islands, and the Lower Mainland (BC CDC 2007). This species inhabits a wide range of habitat types, including coniferous, mixed, and deciduous forests, open woods, and even open grassy sites (Forsyth 2004). Although fairly common within its BC distribution, this snail occurs largely in areas where there is considerable pressure on its remaining haunts for urban development. This species was recorded in many areas of the park during both the June and August field sessions and appears to have a large and stable population in the area.

Threaded Vertigo (*Nearctula* sp.1)

This species is currently undescribed and, to date, has been found at only 2 locations in southwest BC (eastern Vancouver Island [Union Bay] and the Sunshine Coast [Egmont]) (BC CDC 2007). Elsewhere, this taxon has been recorded south along the Pacific coast to central California (Forsyth 2004). The Threaded Vertigo is restricted to rich, continually moist, mature or old-growth deciduous and mixed forests where it occurs within the leaf litter (Forsyth 2004; BC CDC 2007). Clearcut logging practices have undoubtedly impacted this species because of its dependence on moist, mature forests (BC CDC 2007). Although it has not been detected in the vicinity of the Englishman, this tiny species is easily overlooked and, since targeted surveys have not occurred in the watershed and since appropriate habitat exists, it is considered at least potentially possible that this species inhabits the watershed.

Broadwhorl Tightcoil (*Pristiloma johnsoni*)

This small, rare snail is known from only 3 sites in southwest British Columbia, including 2 locations on Vancouver Island (BC CDC 2007), and also ranges south along the coast to Oregon (Forsyth 2004). This species occurs sporadically throughout its range, where it can be found locally in the leaf litter of mature or old-growth coniferous, mixed, or deciduous forests from low to subalpine elevations (Forsyth 2004; BC CDC 2007). This species may exist in small numbers in mature forests of the Englishman River watershed, which has not been adequately surveyed for terrestrial mollusks.

Scarletback Tailedropper (*Prophysaon vanatta*)

More common and widespread than the previous species, the Scarletback Tailedropper is restricted in British Columbia to Vancouver Island and the upper Fraser River Valley (Chilliwack) (BC CDC 2007). The species also ranges south along the coast to northwest Oregon (Forsyth 2004). It is largely an arboreal species and is found primarily on the moss-covered branches of trees and shrubs of coastal mixed forests (Forsyth 2004) and is susceptible to being impacted by logging practices (BC CDC 2007). It is considered possible (perhaps likely) that this slug occurs in ERRPCA based on the species' distribution and the habitats that are present within the park.

Pacific Vertigo (*Vertigo andrusiana*)

This very small snail, which ranges south to Oregon and California, is known in British Columbia from only 4 sites, all on the Saanich Peninsula (3 sites) or Gulf Islands (Mayne Island) (BC CDC 2007). It is a species of coastal lowland forests throughout its range, and its localized distribution in British Columbia places it in danger of significant habitat loss (BC CDC 2007). It is possible that populations of this easily overlooked species occur more widely than the few confirmed records indicate, and it is therefore considered a potential candidate for occurring in ERRPCA.

Black Gloss (*Zonitoides nitidus*)

This snail is known in BC from only 8 occurrences in the Okanagan Valley, Lower Mainland, and Vancouver Island (BC CDC 2007), although it ranges widely throughout the northern hemisphere (Forsyth 2004); some authorities have suggested that Pacific coast populations may be introduced (Forsyth 2004). This species lives under wood, rocks, and vegetation in wet, marshy habitats and along rivers, lakes, sloughs, and ponds (Forsyth 2004). The widespread alteration and destruction of wetlands in British Columbia places this species in direct danger of habitat loss (BC CDC 2007). Appropriate habitat exists throughout ERRPCA, however, and it is possible that the species exists there.

River Habitat

Four habitat assessments were completed recently that pertain to the Englishman River mainstem. Overview assessments of channel condition (nhc 2002) and fish and fish habitat (Lough and Morley 2002) were conducted as part of the Englishman River Recovery Plan implementation process (Bocking and Gaboury 2001). Weyerhaeuser conducted a watershed assessment to identify impacts of past forest development activities on the condition of the streams and to provide guidance for a Prescription Team to develop management strategies for Weyerhaeuser's future forest operations in the Englishman River watershed (Higman et al. 2003). A protection and restoration strategy was also developed for the anadromous section of the river under the auspices of the Englishman River Watershed Recovery Plan and the Pacific Salmon Endowment Fund Society (Gaboury 2005). The strategy prioritizes activities along the mainstem to protect and restore, over the long term, those processes of the watershed and elements of the ecosystem that salmon and other native fishes require for survival.

Lough and Morley (2002) and nhc (2002) concluded that the mainstem channel is considered to be overwidened with a limited number of high quality rearing pools, particularly in the section of mainstem channel bordering the ERRPCA. The current status of the anadromous section of the Englishman River is regarded as being in relatively poor condition. The authors indicated that although the river is showing signs of recovery in some reaches (i.e., evidenced by re-vegetation of the gravel bars), excessive bank erosion and lateral channel migration along with poor pool-riffle development continues to plague the river. These factors lower fresh water survival of salmonids and the quality of their rearing and spawning habitats.

Weyerhaeuser's Englishman River watershed assessment (Higman et al. 2003) stated that the majority of headwater reaches lack LWD that would normally retain sediment and that this will likely be a long-term problem as the riparian forest is too young for new LWD recruitment. They confirm that as a result of logging, accelerated transport of sediment from upstream reaches has increased deposition below the anadromous barrier.

The large floods in 1980-1983 and 1990 resulted in significant changes to the stream channel; channel destabilization and infilling with fine material (Craig Wightman, Bob Hooton, Dave Clough, pers. comm.). These flows likely resulted in channel widening, riparian damage, and large-scale reduction in large woody debris (LWD). The river is still in a state of recovery from these events.

An analysis of the changes in mainstem channel pattern, length, width and gradient that have occurred over the past 50 years was completed by Gaboury (2005; Figure 4). Based on an analysis of aerial photos for the anadromous portion of the mainstem, the reach bordering the ERRPCA showed the greatest lateral migration and change in channel length. The current channel length (2002) in this reach is about 727 m or 20% shorter than it was in 1949. Most of the shortening in this reach occurred by 1968. The loss of two large and two small meanders accounts for much of the shortening that occurred within this reach. Shortening of the channel has decreased sinuosity and increased channel gradient and has contributed to increased streambed and bank erosion within this reach. Changes in sinuosity and gradient have been much less dramatic in the other reaches downstream of the anadromous barrier.

The greatest change in average channel width was evident in the reach bordering the ERRPCA. Average channel width has increased from 44 m in 1949 to 82 m in 1968 m, an increase of 37 m. In 2002, the width had decreased slightly to 72 m. As average width measurements include gravel bars, the increase in average width in the ERRPCA reach is primarily due to lateral migration of the channel. For example, erosion at primarily three meander bends caused the channel to shift laterally from 60 to 80 m between 1984 and 1996. The instability evident in this reach is of



Figure 4. History of mainstem channel positions within ERRPCA.

concern as this reach is a primary spawning and rearing area for anadromous fish within the Englishman River. As such, the ERRPCA mainstem reach was the zone where much of the future restoration effort was focused (Gaboury 2005). For the other reaches within the anadromous zone, the average channel widths have not varied greatly since 1949.

Fish Populations

The Englishman River supports significant populations of salmon. Chum is the dominant species followed by coho. Steelhead, cutthroat, Chinook, pink and sockeye are also present. The anadromous¹ section extends up to Englishman River falls, a distance of about 16 km from the mouth. Resident game species include Dolly Varden and rainbow trout. Table 4 shows when the various life stages for each anadromous salmonid species are present within the Englishman River and estuary.

The entire mainstem reach within ERRPCA is the primary spawning area for all species of anadromous fish within the Englishman River, including chum, coho, Chinook and pink salmon and steelhead (Figure 5). The C.W. Young Channel is used for spawning by the same species as found in the mainstem as well as cutthroat trout. Coho and chum salmon and cutthroat trout use the MB side channel for spawning. The mainstem provides good quality rearing habitat for coho and steelhead while the side channels provide good to excellent rearing habitat for coho, steelhead and cutthroat trout. The mainstem within the ERRPCA has been the primary area of focus for aquatic and riparian restoration efforts over the past decade.

Table 4. Life history timing for anadromous salmonids within the Englishman River and estuary.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coho												
Chinook												
Pink												
Chum												
Sockeye												
Steelhead												
	Eggs	Fry	Smolts		Adults							

¹ Anadromous defined as fish that breed in freshwater but live their adult life in the sea

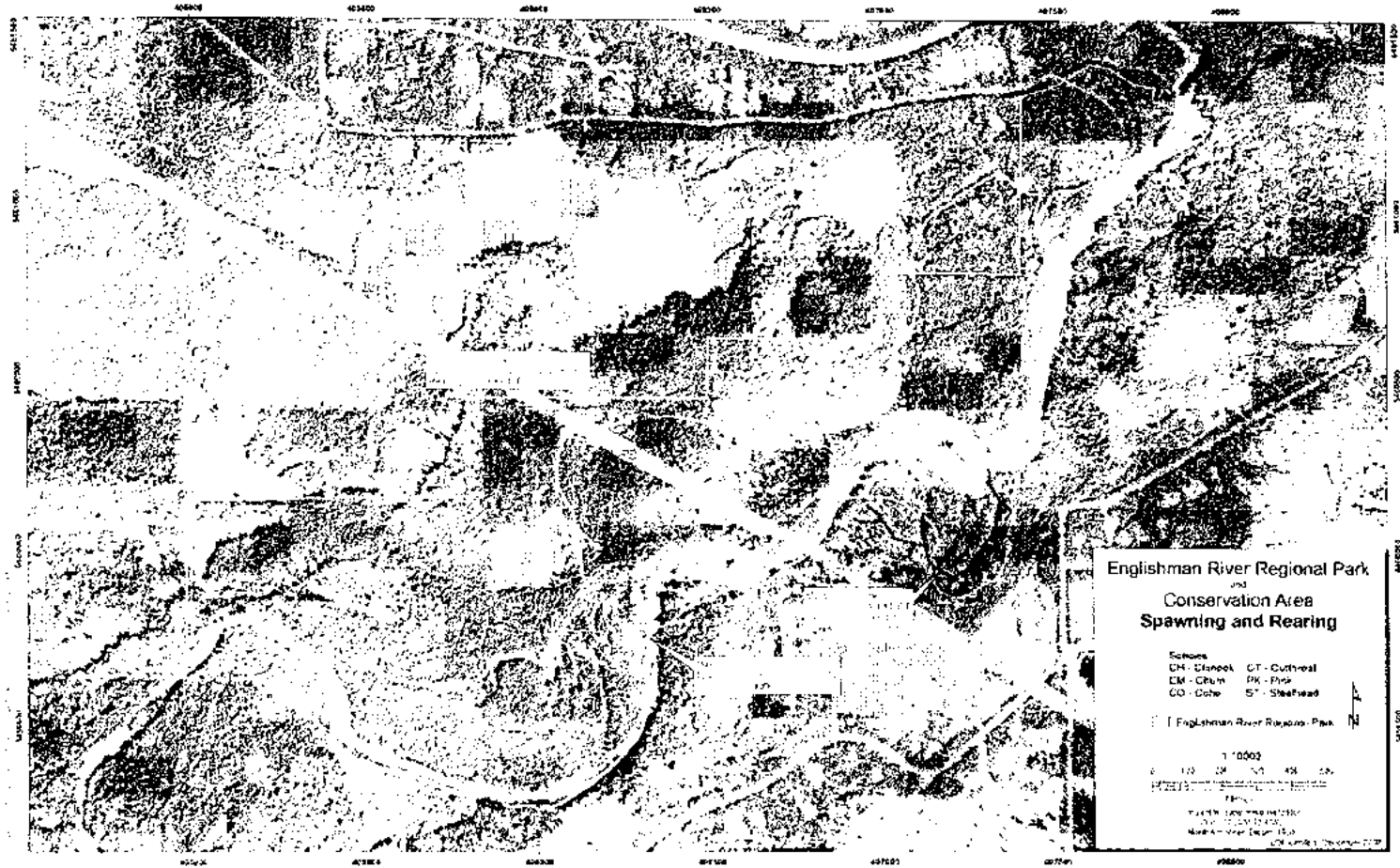


Figure 5. Map of ERRPCA showing distribution of salmon and trout species that use mainstem and side channel habitats for spawning and rearing.

Adult Abundance

Coho

Escapement records for salmon in the Englishman date back to 1953. Prior to 2000, the historical maximum estimate for coho was 3,500 spawners recorded in 1957 (Figure 6). Since then, escapements have reached 5,280 in 2000 and then 8,000 in 2001. Escapement in the most recent count (2005) was 3,700.

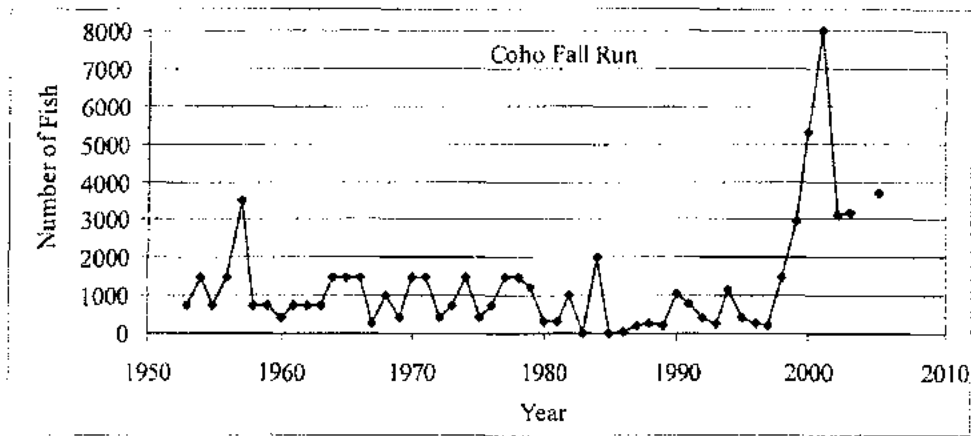


Figure 6. Coho escapements to the Englishman River. (DFO database - http://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm).

Steelhead

Winter-run steelhead salmon abundances have declined considerably since 1985 (Figure 3). Historical abundances of wild steelhead ranged from 500 to 2,000 adult returns to the river. During this period, Englishman River steelhead were enhanced and it is difficult to discern the population size of the wild stock. Current abundances of steelhead in the Englishman are at critically low levels (Figure 7; Wightman et al. 1998).

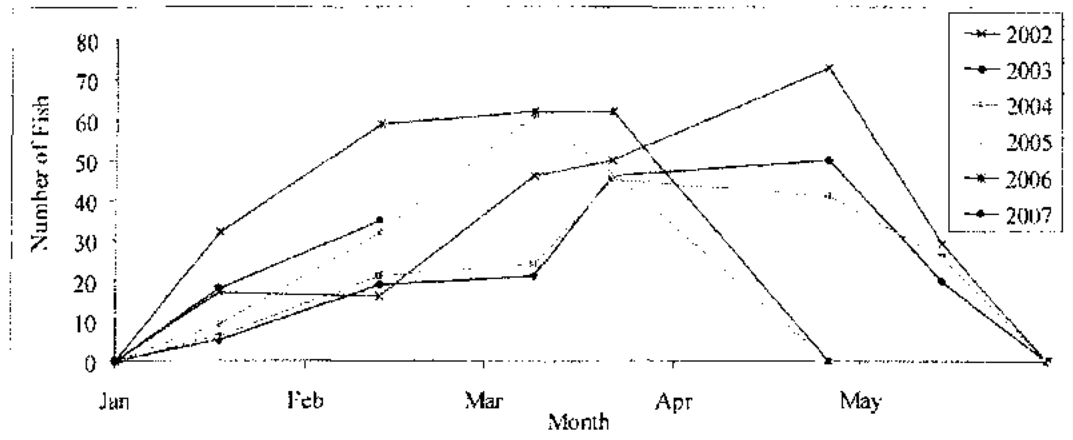


Figure 7. Number of steelhead observed during snorkel surveys in Englishman River by BC Conservation Foundation staff. Data provided by J. Craig, BCCF.

Chum

Chum escapements to the Englishman were as high as 15,000 historically, then declined to as low as 200 in 1987 (Figure 8). Over the past 5 years, the number of chum has been increasing to a record return in 2003 of 34,800 chum. Coho and chum salmon abundances appear to have tracked each other fairly closely.

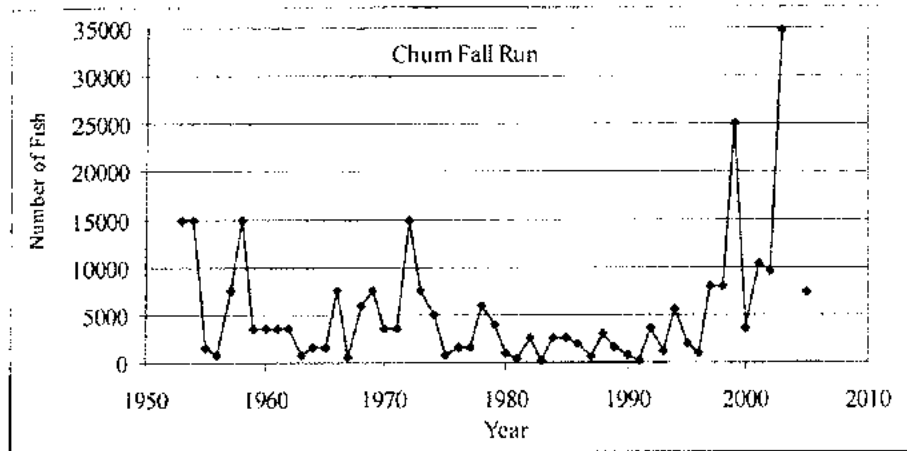


Figure 8. Chum escapements to the Englishman River (DFO database - http://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm).

Other Salmon

Historically, abundances of pink (Figure 9), Chinook (Figure 10) and sockeye have always been lower than chum or coho (<500 average). Englishman River pink salmon declined precipitously from 1958-1962 to near extinction levels. In 1992, attempts were made to re-establish the pink run in the Englishman River by transferring eyed eggs from the Quinsam River hatchery. Recently, pink and Chinook escapements have increased significantly with 13,500 pinks and 2,900 Chinook enumerated in 2001. Chinook salmon in the Englishman are now predominantly of Big Qualicum River stock due to enhancement efforts over the past 12 years. There is a small number of stream-type sockeye in the Englishman River but little is known about this population.

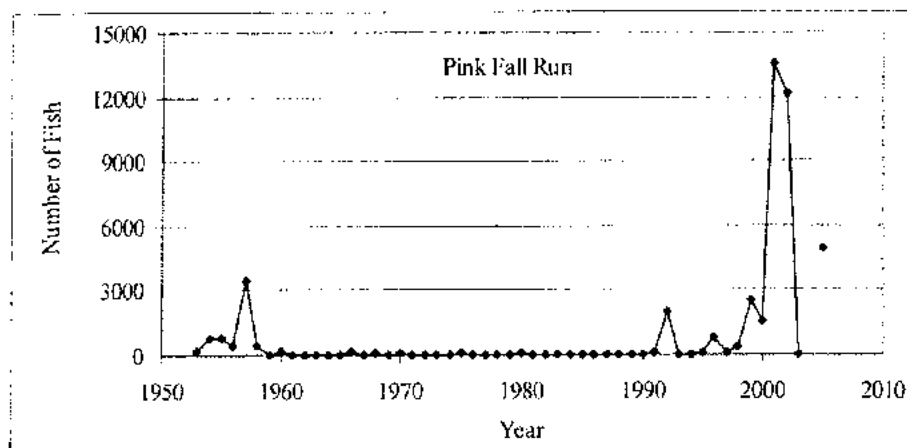


Figure 9. Pink salmon escapements to the Englishman River (DFO database - http://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm).

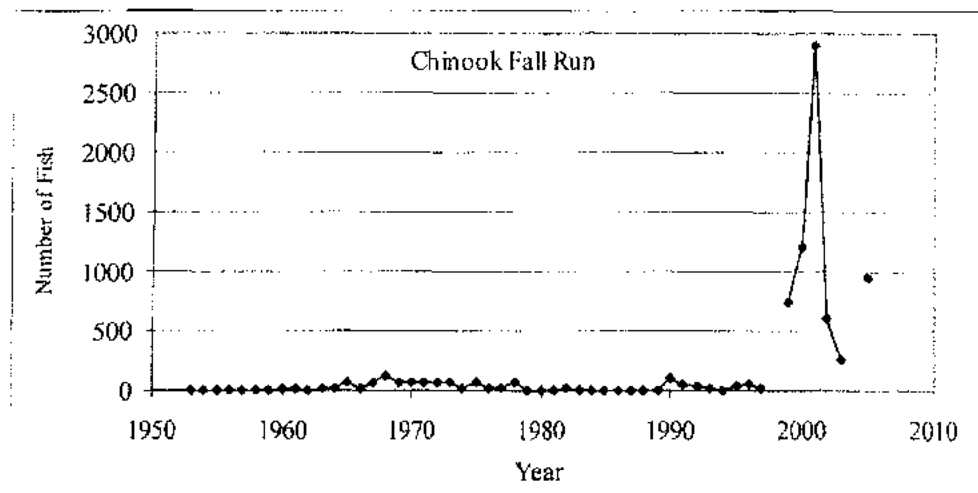


Figure 10. Chinook escapements to the Englishman River (DFO database - http://www-hcb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm).

Juvenile Abundance

Coho and rainbow trout rearing have been confirmed through electrofishing surveys by Lough and Morley (2002). From the brief surveys, the reach within the ERRPCA tended to have higher abundances of coho fry while rainbow trout fry were fairly evenly distributed throughout the anadromous section.

Recent monitoring of smolt production from the system in 1998 and 1999 has generated estimates of 27,000 and 46,000 coho smolts, respectively (Decker et al. 2000). Between 17% and 20% of the smolt production came from the two constructed side-channels within the ERRPCA and the remainder came from natural watercourses.

Densities of steelhead fry in the Englishman River (as for many other Vancouver Island streams) appear to be well below predicted levels based on habitat capability (Ptolemy 1993) and abundance data collected during the 1980's when there was relatively high spawner abundance and catch rates.

Habitat Enhancement and Restoration Projects

In the 1990's, two artificial side-channels were constructed by DFO with support of MacMillan Bloedel (MB) and C.W. Young Channel (formerly TimberWest Channel) on the Englishman River to increase the amount of side channel rearing habitat for juvenile coho salmon (Decker et al. 2000) as well as benefit the spawning and rearing of other native salmon and trout species in the watershed. Both of these channels are within the ERRPCA. The C.W. Young Channel is located on the north bank of the river approximately 7 km upstream from the mouth, just below Morison Creek confluence. The MB channel is located about 1 km downstream of the C.W. Young Channel on the south bank.

Each channel consists of approximately 80% rearing and 20% spawning habitat (Decker et al. 2000). The C.W. Young Channel is 1,300 m in length and consists of 17,700 m² of habitat. The MB channel is 950 m in length and consists of 6,000 m² of habitat. The MB and C.W. Young channels currently account for approximately 20% of the total coho smolt production from the Englishman River.

In 2007, the C.W. Young Channel was lengthened by another 2 km, with the outlet of the channel a few hundred metres upstream of the Top Bridge Crossing. This brings the total length of constructed side channel habitat in the Englishman River to 4,300 m, or 15% of the total length of accessible riverine habitat. A ten year monitoring program to assess the effectiveness of this channel is currently being planned by DFO (M. Sheng pers. comm.).

Since 2003, large woody debris (LWD) and rock groin structures that provide instream cover as well as some bank protection have been constructed by BCCF at two meander bends within the ERRPCA (Figure 11). The bends have shown an accelerated rate of erosion over the past 50 years (Gaboury 2005). Recent monitoring has shown that these structures have been effective at providing good quality rearing and holding habitats for salmonids, and at reducing the rate of channel bank erosion and meander migration.

In addition to the main road through the ERRPCA, several access trails were developed during structure construction (also shown on Figure 11). Although these smaller trails have been deactivated, re-planted and allowed to recover, the trails may be re-developed if future structure maintenance requires access by heavy machinery.

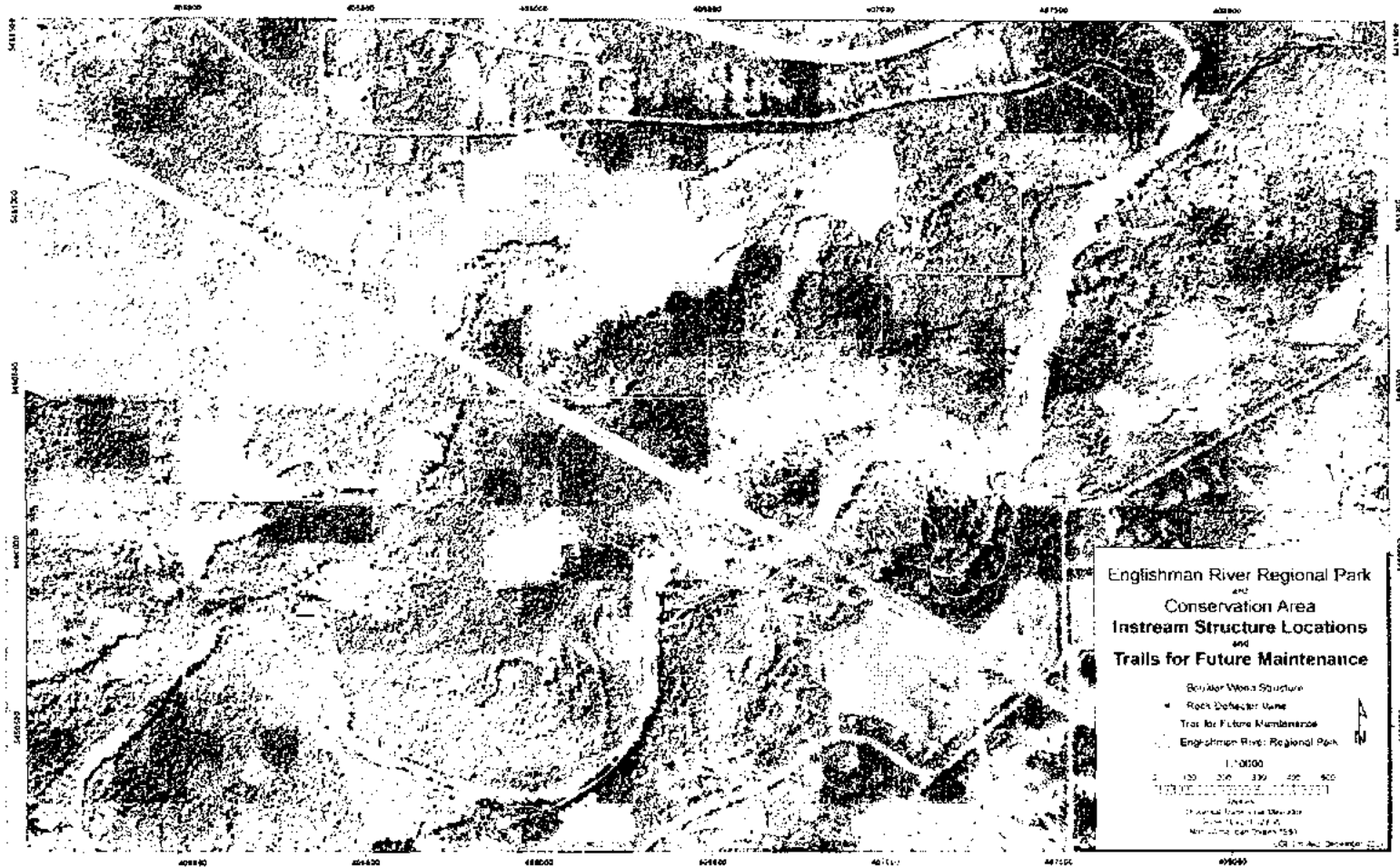


Figure 11. Instream structure locations and trails for future maintenance in the ERRPCA and Conservation Area, 2007.

CONCLUSIONS AND RECOMMENDATIONS

The landscape of the ERRPCA is a mosaic of mature and young forested habitats, wetlands, and disturbed areas. Many of the habitats in the ERRPCA are widespread and common across southern Vancouver Island. Most of the habitats that are present represent either mature forest types or younger regenerating forest types that, if left alone, would mature naturally over the course of several decades. Maintenance of the site as an undisturbed park would allow these habitats to mature into old-growth forest representative of the potential of the CDFmm ecosystem, which, given the rarity of this type of habitat on the Island, would increase the conservation value of the ERRPCA. Nonetheless, even in their current state, these habitats are rich in biodiversity and provide critical habitat to many species that are both threatened and secure in British Columbia.

Prediction of Future Conditions in the Park

If no upland restoration were to occur in the ERRPCA, existing forest types would follow a well-understood and predictable succession with respect to forest age and composition (BC Min. Environment, Lands and Parks and Min. Forests, 1998). Based on our visual assessment of forest age currently, and in the absence of restoration or natural disturbance such as fire, major wind throw and assuming that the Englishman River channel does not migrate markedly from its present location, the majority of the ERRPCA would be mature forest in 20 – 50 years from present. In 100 years, most of the park would be classified as old-growth. Disturbed habitats (e.g., the gravel pit) would develop into a stand of mature and middle-aged forest.

Figure 12 predicts the succession of dominant community types over the next 20, 50, and 100 years in the absence of restoration and major natural disturbance. These processes could provide an excellent opportunity for the public to be exposed to the concept of natural habitat succession. The use of strategically placed interpretive signs along the extensive trail system of the park would be the ideal way to communicate information to the community about the habitats that are present and the ecological processes that are underway in the park.

Susceptibility of Habitats to Human Use

Monitoring the potential impacts of human-caused disturbance on the park's habitats is of particular importance for assessing the overall health and stability of the ecosystems that are present. Some of the identified habitats are especially susceptible to degradation due to increased human traffic and activities while others are less sensitive to these factors (Table 5). Identifying the sensitivity of particular habitat types will inform park officials with respect to the management of ERRPCA as it pertains to human use.

The user groups assessed for potential impacts include hikers, equestrian/horseback riders, and mountain bikers. Impacts associated with unauthorized groups (ATVs, motorcycles) would default to high, not only because ATV's and motorcycles can cause significant modification to the substrate and existing trail systems, but because of the potential negative interactions with hikers, mountain bikers, and equestrian users of the park.

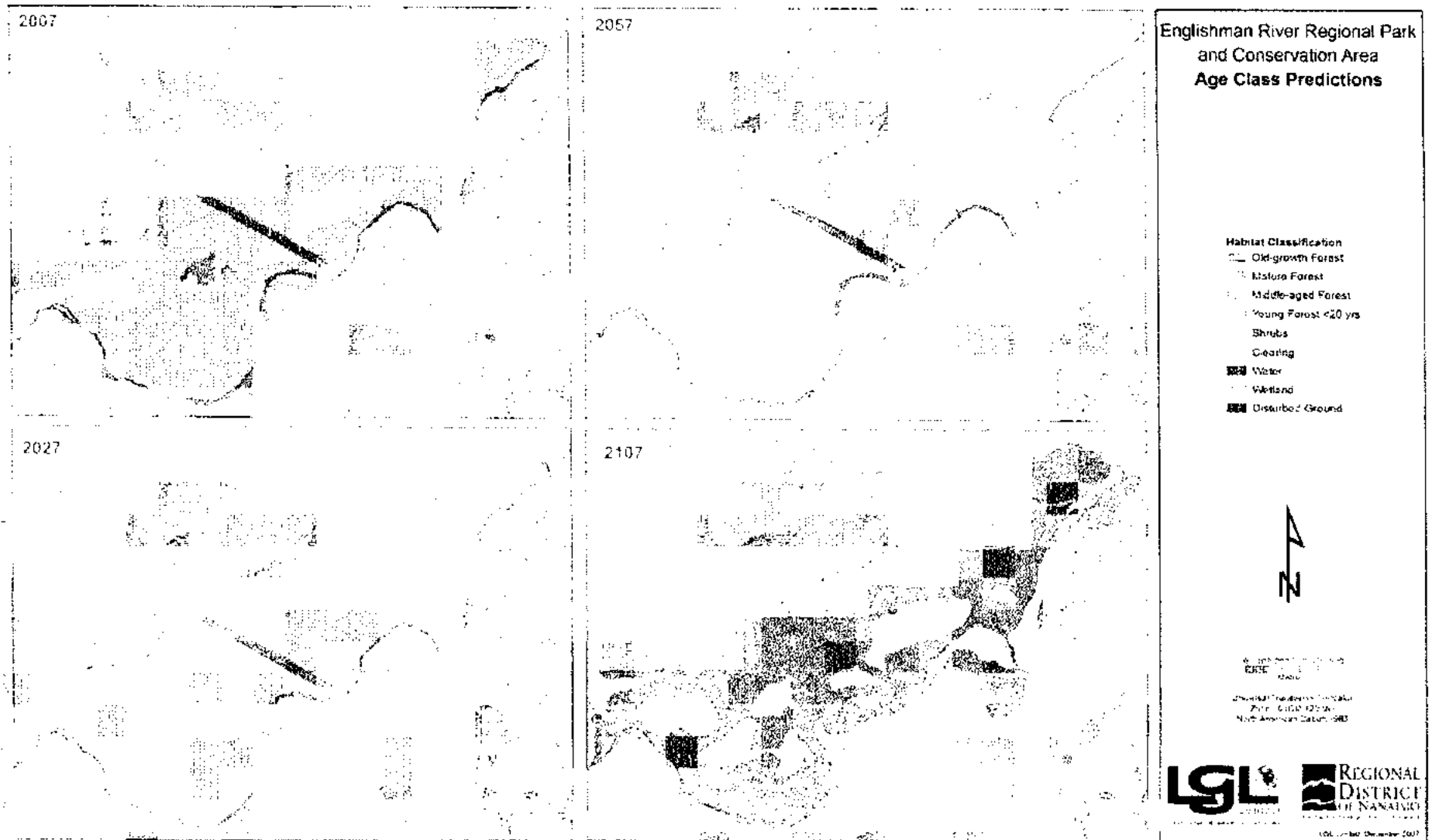


Figure 12. Predicted distribution of major vegetated community types in 2007, 2027, 2057, and 2107 in the absence of restoration or large scale natural disturbance (based on Min. Environment, Lands and Parks and Min. Forests, 1998).

Table 5. Evaluation of the potential negative impacts by human uses on habitat types in the ERRPCA.

Habitat Type	Potential for impact	Rationale
Dry Mixed Forests (DMF)	Moderate	Impacts are contained if use is restricted to authorized trails; some localized potential for erosion, particularly where equestrian traffic is heavy.
Moist Mixed Forests (MMF)	High	Wet, loose soils make this habitat vulnerable to compaction and/or erosion; impacts contained if use is restricted to a minimum number of authorized trails.
Mesic Second-growth Coniferous Forest (SCF)	Moderate	Impacts are contained if use is restricted to existing trails; some localized potential for erosion, particularly where equestrian traffic is heavy.
Regenerating Cutblocks (RC)	Low	Generally densely vegetated, therefore less conducive to human entry; vegetation is largely composed of introduced species, suggesting an already disturbed landscape.
Riverine Flats (RF)	High	Loose soils and sensitive plant communities; open nature of the habitat may also attract greater use. Some trails already exist through this habitat, but additional trail formation could trample the sparse vegetation and allow further establishment of invasive plant species. This habitat is considered one of the most sensitive habitats in ERRPCA.
River and side-channel (RI)	High	<p>Shallow areas are susceptible to streambed compaction and disturbance by users fording the river or channels, particularly by equestrian users. Fording of and movement along the banks can cause bank instability and increase sediment generation, negatively impacting fish rearing and spawning habitats.</p> <p>Maintaining the integrity of riparian vegetation is fundamental to maintaining channel stability and floodplain function. Trails within the riparian corridor of the mainstem should be minimized to reduce the likelihood that the trail becomes a conduit for flood flows leading to a channel avulsion.</p> <p>In particular, the River Trail opposite the Clay Banks is inundated frequently by flood events and is very vulnerable to a mainstem avulsion. Therefore, it is recommended that the River Trail be decommissioned and any new trails built in the Park be set back from the top of the bank (i.e., high water mark) at least 30 m. Furthermore, to minimize disturbance of riparian vegetation and ensure bank stability along the side channels, it is recommended that any additional trails paralleling these channels be minimized and that viewing opportunities be established through short branch trails off the main trails.</p>
Disturbed Sites (DS)	Low	The vegetation on these sites is largely or entirely composed of introduced, often invasive species. It is not expected that any additional public use would be to the detriment of these habitats because the species that are established are well adapted to disturbance.
Dry Pine Forests (DPF)	Moderate	Impacts are contained if use is restricted to existing trails. However, the open nature of some areas may attract off-trail use; such use has the potential to disrupt the fragile ground cover of mosses and lichens and increase the possibility of invasion by exotic plants.
Riparian Thickets (RT)	High	Tends to be thickly vegetated, and therefore, not conducive to exploration away from existing trail networks. However, because it is locally rare, creation of additional unauthorized trails can have a significant impact.
Swamps and Ponds (SP)	High	These habitats are uncommon to rare on the property and provide specialized habitats for species with generally narrow ecological

Habitat Type	Potential for impact	Rationale
		requirements. Impacts are contained if use is restricted to a minimum number of trails adjacent to these sites.
Forest Clearing (FC)	Moderate	The open nature of this habitat would likely expose it to high levels of potential use if trails were established in this area.
Ephemeral Pools (EP)	High	The shallow water body in the centre of the disturbed gravel pit would likely attract the attention of the public, which could have serious impacts on the stability of the habitat. The water is shallow enough to be crossed, which poses the greatest potential threat to the ecological community that has become established. Additional trampling could be a problem in late summer when the water level in the pools drops.

Educational Opportunities and Recreation Values

Self-guided Interpretation

The diversity of habitat types that exist in ERRPCA provide for excellent educational opportunities, particularly with respect to native flora and fauna of the coastal Douglas-fir ecosystem. The existing trail network not only provides recreational opportunities for hikers, bikers, and horse riders, but it also provides an opportunity to develop a self-guided natural history tour of the coastal Douglas-fir ecosystem and ERRPCA. For example, information signage, placed adjacent to unique habitat types, or in habitat types typical of the coastal Douglas-fir forest that describe the flora and fauna unique to that habitat could be erected. Similar signage at key salmon spawning or migration locations could be used to inform the public about the fisheries values of Englishman River. For example, excellent viewing opportunities for salmon spawning exist at bridge crossings on the side channels and, in particular, along Channel Trail immediately downstream of the fish hatchery where coho spawning is concentrated. Also, the fish hatchery provides a focal point for providing viewing opportunities on a working hatchery and delivering ecological information on fish culture, salmon life histories and habitat restoration to park users.

School Groups

Combining recreation with education would create a park that provides recreational opportunities while informing the public about conservation strategies used to preserve native ecosystems. The educational component of the ERRPCA could be delivered to local schools as a conservation module that could include activities like collecting and identifying the leaves and cones of native coniferous and deciduous trees, an introduction to the animals of the coastal Douglas-fir ecosystem, and a component on the importance of conserving our native habitats, not only for animals and plants, but for our own enjoyment. The module could culminate in a field-based learning day that includes walking the trail system of ERRPCA with stops at the various signs to discuss why those habitats are important to the integrity of native ecosystems. This module would be appropriate for elementary and middle schools.

Enhanced programs, suitable for high schools students, particularly those interested in natural history, could be developed that involve completing small-scale studies of various aspects of the ERRPCA. For example, directed studies on plants or animals could be carried out in the various habitat types that occur on the property. These studies could be designed to occur over one or more terms of the school year. Information obtained from these studies could be compiled into a flora and fauna database of ERRPCA.

Post-secondary Education and Research Opportunities

At the post-secondary level, interaction with Malaspina University College could lead to the incorporation of habitats at ERRPCA into larger-scale, regional studies on native flora and fauna of the coastal Douglas-fir ecosystem. The diversity of habitat types on the property provides a unique opportunity to monitor changes in habitat condition or species composition over time relative to various influences, including climate change and adjacent land uses. The establishment and use of these monitoring stations could then be incorporated back into the conservation module developed for elementary and middle schools and the students of Malaspina University College could deliver the material and relate the use of the monitoring stations to the bigger picture of conservation.

Some of the wildlife encountered at ERRPCA are introduced species that could impact local population of native flora and fauna. For example, Green Frogs were observed in ERRPCA. The impact of this species on native amphibians or their habitat is not well understood. Knowing that non-native species like Green Frogs occur at ERRPCA again provides an opportunity for researching the impacts of non-native species on native fauna. Research like this could be carried out at the post-graduate level, and if properly designed, could even contribute to one or more graduate degrees. To inform the public about the presence of non-native frogs in ERRPCA, and in surrounding areas, posters, such as those designed by the Ministry of Environment and Habitat Conservation Trust Fund could be posted at various locations throughout the park. This would make the identification of non-native species easier for the public, and with their help, would help to alert RDN of the presence of non-native species in the park.

The presence of non-native amphibians in ERRPCA can also be incorporated into the conservation module developed for elementary and middle school students, and presents an opportunity for monitoring of amphibian populations, which could be carried out by high school students.

Habitat Restoration

The primary goal with respect to habitat management in the ERRPCA is to protect the current integrity and productivity of the existing habitat into the future by identifying sensitive ecosystem components and sensitive areas, and by implementing measures to ensure that land and water use activities do not have detrimental effects on these components and sensitive areas. The secondary goal is to implement measures that will hasten the restoration of ecosystem components and processes to a condition that maintains high quality instream and riparian habitats.

The potential restoration opportunities within ERRPCA are prioritized as follows:

1. Restoration of the gravel pit area;
2. Revegetation of the banks of the DFO side channel;
3. Riparian treatments along on the river corridor;
4. Bank stabilization on the main river; and
5. Assessment of the clay bank.

Restoration priorities are discussed below under two categories – those related to land-based resources and those associated with the main river channel.

Land-based Resources

Although the efficacy of habitat restoration in many of these areas has been discussed, it appears from our survey of the property that with two possible exceptions, little actual habitat restoration or augmentation needs to be considered for the land-based resources. The habitats that are present are diverse and, in most cases, healthy. The diversity of habitat types provides excellent habitat for a variety of wildlife and contributes to high biodiversity.

Restoration of the Gravel Pit Area

The large gravel pit area near the centre of the park that has been allowed to grow into a disturbed, weedy habitat with many exotic and invasive plant species. Remnant wetland pools within the gravel pit suggest that the area is a natural collection area for runoff and, by developing the site into a productive wetland using this natural runoff, significant improvements to the otherwise degraded habitat could be accomplished. In addition, wetland ponds could be developed as alcoves off of existing side channels.

Revegetation of the Banks of the DFO Side Channel

Similarly, the banks of the nearby side channels that were built by DFO to provide additional salmon spawning and rearing habitat could be revegetated with a variety of shrub species such as willows (*Salix scouleriana*, *S. lucida*, *S. sitchensis*), Black Twinberry, and other species that are typical of moist habitats.

River Corridor

Of the 10 priority protection and restoration measures identified in the strategy for the Englishmen River mainstem (Gaboury, 2005), three remain that are applicable to ERRPCA.

Riparian Treatments

Poulin (2005) has recommended riparian treatments for the ERRPCA reach with the objectives of hastening the recovery of a conifer dominated riparian community and stabilizing the streambanks and gravel bars. The treatments, in order of priority, were as follows (see Poulin 2005 for location of polygons):

Polygon	North or South Bank	Treatable Area (ha)	Treatment
13c	North	1.5	Cottonwood release/collection
13d	South	0.8	Cottonwood release/collection
8	South	1.5	Cottonwood release/collection
13b	North	3.8	Uniform thinning/conifer release

In addition to Poulin's riparian vegetation prescriptions, revegetation of eroding banks should occur at existing and future bank stabilization structure sites. Willow and alder are beginning to colonize the streambank area between the existing LWD and riprap structures. Additional willow should be planted between the top of the bank and low water surface at structure sites. Poulin (2005) recommended three techniques to establish vegetative cover around the LWD structures using cottonwood and shrubs. The techniques included palisades, live stakes and brush layering.

Bank Stabilization – Maintenance of Structures

The recommended priority for restoration works in the Park reach, as stated in the protection and restoration strategy (Gaboury 2005), was the north streambank of the mainstem where significant erosion and channel migration into the Park has occurred over the past 50 years (Figure 4). Two banks are of most concern; the north bank along the Long Run and the north bank meander bend upstream of the BC Hydro Corridor. Since 2003, LWD and rock groin structures that provide instream cover as well as bank protection have been constructed by BCCF at these two meander bends (Figure 11). Based on a visual assessment in 2007, these structures have been very effective at stabilizing the streambanks and reducing the rate of channel migration into the Park. In addition, the structures have expanded on the amount of high quality fish rearing habitat by providing a greater frequency of pool habitat with instream cover. Although no new instream structures for bank stabilization or instream habitat are contemplated by DFO or BCCF in the immediate future, ongoing maintenance of these structures is recommended to ensure bank stability and protection of Park resources.

Assessment of Clay Bank

The clay bank located 150 m downstream of the confluence with the South Englishman River has been identified as a potentially significant source of sediment to the river. Even though the clay bank is outside of ERRPCA title lands, the chronic erosion of the bank may have downstream impacts on ERRPCA streambanks and instream fish habitat. From a preliminary analysis of aerial photo mosaics, it appears that migration of the channel into the clay bank has occurred at a rate of about 0.6 m per year (Gaboury 2005). This rate suggests that it may not be a significant sediment source to the river. However, with the changes occurring to land use at the top of the slope and the impacts to the bank as a result of the 2006 floods, further assessment of the rate of erosion and an estimate of sediment contribution should be undertaken in a detailed study. The study should include:

1. An assessment of the clay bank site by a geotechnical engineer,
 - a. to determine the composition and stability of the bank,
 - b. to quantify the rate of channel migration and average annual volume of sediment generated, and
 - c. to provide predictions on the future stability of the clay bank site;
2. An environmental assessment to quantify impacts on fish and aquatic fauna from the current rate of bank sloughing;
3. Field investigations by a river engineer specializing in bank protection to assess the feasibility of stabilization / flow realignment options;
4. If stabilization is deemed feasible, topographic surveys of the clay bank site and the development of a detailed bank stabilization design; and

If restoration works are constructed, a monitoring program should be initiated to determine effectiveness of prescribed treatments.

Future Surveys

The surveys that were completed in ERRPCA during the 2007 field season were able to document only a portion of the flora and fauna that potentially occur in the area. This is due to the fact that the presence and/or observability of many species changes dramatically throughout the year. For example, breeding season surveys such as those done in 2007 are able to record species of birds that occur only during the summer (warblers, flycatchers, etc.), but other species which occur only during the winter or migratory seasons (Ruby-crowned Kinglet, Golden-crowned Sparrow, etc.), are completely missed. In addition, certain species groups (bats, small mammals, owls) require special field techniques to properly document their presence and casual observation, such as was done in 2007, are likely to nearly or completely miss these groups.

The following recommendations for additional surveys in future years are presented (Table 6). If implemented, these surveys would allow for a more thorough assessment of the true biodiversity of this site and would greatly augment the surveys that were done in 2007.

Table 6. Recommendations for species groups not adequately surveyed during the 2007 session.

Species Group	Survey Period	Survey Techniques Required
Wintering birds	Dec-Feb	Casual daytime observation
Migratory birds	Mar-May; Sep-Nov	Casual daytime observation
Owls	Feb-Apr	Nocturnal call-playback surveys
Small Mammals	Mar-May or Sep-Dec	Live-trapping
Bats	Jun-Aug	Nocturnal detection using Petterssen Ultrasound Bat Detectors; Mist-netting
Dragonflies	May-Sep	Live capture and observation
Terrestrial Molluscs	Mar-May or Oct-Nov	Time-constrained searches

Monitoring Program

The diversity of habitats within ERRPCA and the variety of ecological and fluvial processes associated with the Englishman River provide an excellent opportunity to monitor the natural environments of the lower Englishman River watershed. Such programs could potentially work in conjunction with the identified educational and public awareness objectives that have been identified for the park and provide significant opportunities for the public to become involved with environmental restoration and monitoring.

Effectiveness monitoring of existing instream structures and other restoration/enhancement works is fundamental to guiding future expenditures on treatments and implementing timely maintenance. For example, DFO is planning to monitor the outmigration of coho smolts from the newly constructed side channels over the next ten years (M. Sheng, DFO pers. comm.), and BCCF will continue to conduct routine monitoring of mainstem instream structures on an annual basis (J. Craig, BCCF pers. comm.).

Monitoring Protocol

To monitor the natural values of the park, specific objectives for those natural values need to be articulated. At present, the information contained in this document was generated using cursory, reconnaissance-level field surveys of the various habitat types on the property. The development of a monitoring program requires the collection of baseline data against which future data can be compared. Baseline data must first be collected in such a manner that enables quantitative (as opposed to qualitative) assessments of the changes of a given valued ecosystem component. In short, the monitoring program must be based on the assessment of quantitative data that are sampled using repeatable, scientifically defensible methods.

The following steps are recommended for any monitoring programs that may be carried out within ERRPCA:

- 1. Outline objectives.** The type of monitoring implemented will depend on the objectives developed for the park, which is crucial to the monitoring program. Without objectives, there is no way to monitor the effectiveness of any management strategy implemented in the park. For example, what are the objectives of creating side-channel habitat in ERRPCA? What monitoring methods, variables, sampling frequency, etc. will be used to determine if the objectives have been met?
- 2. Identify and contact potential sources of assistance or data.** Determine who in the community would be appropriate for this type of monitoring and if are they willing to participate. Existing data sets (e.g., Christmas Bird Count data) may also be available that would provide broad perspectives on the ecological integrity of the park. Caution must be exercised when using temporal data sets collected by many people over long time periods because of the inherent bias associated with these data sets. For example, survey effort and duration is rarely, if ever, corrected for in these types of data sets. They do provide a sense of species persistence in an area across time (assuming equal detectability and surveyor ability throughout time).
- 3. Develop survey protocol.** Design a monitoring protocol that will allow the researcher to adequately assess the objectives of the monitoring program. For most species groups, the Resources Inventory Standards Committee has developed survey protocols that are routinely used in British Columbia. These protocols should be used, or serve as the basis for the development of survey protocols. Surveys to collect quantitative data following an established protocol can then be repeated over time.
- 4. Field set-up.** Effective monitoring requires replication to be statistically reliable. Therefore, it will be necessary to establish, for example, survey plots to monitor vegetation changes or consistent trap locations and survey timing to monitor smolt migration.
- 5. Complete a preliminary census.** For monitoring programs that are intended to document any temporal changes, a baseline survey will need to be completed that will serve as a reference point

for future surveys. All baseline data should be collected from permanent plots or sampling locations.

6. **Continued monitoring.** Following the completion of the baseline survey, additional surveys will be required to monitor any changes over time. Again, these surveys should occur at the sites established during the baseline data collection phase of the monitoring program.
7. **Comparison with preliminary results.** The results obtained from the continued monitoring will be compared against the original survey results to provide some indication of the scale and magnitude of any changes that have taken place.

The seven steps identified above describe the steps involved with a generic monitoring study. The duration, timing, and type of sampling for specific groups should be developed as needed and all monitoring needs to be based on written objectives.

For example, if an objective was to reduce the cover of invasive plants in Mesic Second-growth Coniferous Forests through a management strategy that involved manual removal of invasive plants, a monitoring program may involve the following steps:

1. Articulate the objective: To reduce or remove the cover of non-native plants relative to native plants in Mesic Second-growth Coniferous Forest through the manual removal of non-native plants and to evaluate the effectiveness of manual removal in reducing the cover of non-native plants.
2. Establish the study design: X number of 20 m X 20 m quadrats in the SCF. Establish equal numbers of plots in areas that will be treated (i.e., where manual removal of plants will occur) and in control areas (where no removal will occur).
3. Establish a baseline for all plots in year 1, prior to any non-native plant removal.
4. Monitor all plots for a subsequent four years at annual intervals during the growing season. In each year, compare data collected from treated plots to data collected from control plots to determine if the management strategy of manual removal of non-native plants is having the desired effect (i.e., to reduce the total cover of non-native plants).
5. Assess utility of manually removing non-native plants in meeting the stated objective.

Other species groups will require similar approaches, but different survey methods. For example, songbirds are best sampled during the breeding season (spring and early summer) from variable radius count points while amphibians can be sampled using a variety of live-capture techniques and night time auditory surveys.

Monitoring Resources

The local community may be able to provide some of the expertise needed for most monitoring programs. The survey and monitoring of some species groups, however, will likely require the expertise of a specialist due to the specific requirements involved in the detection of those groups. For example, proper documentation of the small mammal fauna of the park would require not only a familiarity with the species and the ability to identify them, but also access to specialized equipment (live traps) that are needed to capture the animals. Similarly, a proper survey of the terrestrial mollusc fauna of the park would require access to one of the few people who have worked with this group of animals on Vancouver Island.

Besides these specialists, however, a number of other sources of potential monitors exist in the community such as school groups (elementary, middle, and high school students), Malaspina University-College students, and the local natural history society (Arrowsmith Naturalists) (Table 7). The efforts of these individuals could provide valuable assistance in designing and, particularly, carrying out detailed monitoring programs. The local naturalists have the ability to identify and monitor birds, either through standardized protocols or general census, and would be ideal for any surveys involving birds in the park.

School groups, especially high school students, may provide the ability to incorporate the monitoring objectives into an educational framework. For example, spring censuses of the wetlands on the property for the egg masses of pond-breeding amphibians would be an ideal tool for introducing the students to natural history and environmental awareness. More specialized monitoring programs, such as those involving ecological processes and requiring the establishment of monitoring plots, may be more suited to high school or university students.

Table 7. Potential species groups and ecological processes for monitoring and suggested sources of possible monitors in the community.

Potential Monitoring Objectives	Possible Monitors
Species Groups	
Wintering birds	local naturalists
Migratory birds	local naturalists
Breeding birds	local naturalists
Owls	local naturalists
Small mammals	specialists
Bats	specialists
Amphibians	school groups
Dragonflies	specialists
Terrestrial Molluscs	specialists
Fish	specialists, streamkeepers, students
Ecological Processes	
Succession / plant establishment	school groups; university students
Invasive plants	specialists; local naturalists; university students
Channel corridor / floodplain	specialists; streamkeepers; university students
Human-caused habitat disturbance	school groups; university students

Suggested Monitoring Priorities

These monitoring objectives have been prioritized based on their importance on the landscape, the scale of their potential impacts, and the availability of potential monitoring personnel.

I. Biodiversity Assessment

The amount of time that was available during the two field sessions to address the biodiversity of the park was not adequate to detect a number of species and species groups that likely occur there. Year-round bird surveys and additional field surveys targeting difficult-to-assess species groups (small mammals, owls, invertebrates) are necessary to fully document the diversity of plant and animal species that inhabit the property throughout the year. This is critical background information for park managers and will serve to increase the quality of future management decisions by providing an understanding of which species and species relationships exist within the park.

II. Human-caused Disturbance Monitoring

The increased use of the park by the public is expected to have some impact on the natural environments that are present. Vegetation trampling, soil erosion, litter, and introduction of invasive plant species are all factors that are commonly associated with high levels of park use. Although these disturbances are not expected to be detrimental to large portions of the park, certain areas along trails and access points will likely be subject to various forms of disturbance as human use increases. Following the identification of particular "problem sites," a monitoring program could be established that would regularly assess the levels of disturbance at these sites. If

disturbance levels reach a point that is considered unacceptable, steps would then be taken to reduce the human impacts at the sites (e.g., informative signs, roped-off areas, etc.). This would allow managers to keep abreast of problem areas and prevent these sites from becoming severely degraded through human use.

III. Invasive Plants Monitoring

This monitoring program is associated with the human disturbance monitoring above. Invasive plant species, most of which are associated with human-caused disturbance of the landscape, have the potential to severely degrade natural habitats. Species such as Scotch Broom (*Cytisus scoparius*), Orchard Grass (*Dactylis glomerata*), Yellow-flag Iris (*Iris pseudacorus*), and Giant Knotweed (*Polygonum sachalinense*) out-compete and displace native species and result in diminished biodiversity. Problem areas should be identified on the property and steps taken to eradicate these species using the most effective methods. Following this attempted eradication, monitoring of the site is critical to prevent the re-establishment of these or other problematic species.

IV. Plant Succession and Ecosystem Monitoring

Following the completed channel creation and potential wetland creation activities, attempts will be made to establish natural and functioning plant communities at these sites. Monitoring of the effectiveness of these attempts and the succession of these plant communities through time are crucial components of these initiatives. Without monitoring and, perhaps, intervention, these sites would undoubtedly become infested with a variety of harmful invasive plant species at the expense of the desired native species. Monitoring activities during the critical stages of community establishment would allow managers to remove invasive species as they occur as well as ensure that the desired native species and communities are becoming established and maturing successfully. Eventually, once these natural communities have become fully established, monitoring activities could be greatly reduced and the ecosystems allowed to function naturally.

V. Bank Erosion Monitoring

Monitoring of bank erosion rates should occur on the north bank near the side channel inlet structure (i.e., west end of ERRPCA). After the large winter floods in the past few years, DFO raised the access trail along the south bank of the C.W. Young Channel upstream of the hatchery and constructed a rock deflector structure in the mainstem immediately downstream of the side channel intake pipe. The objectives of these structures were to reduce the impact of flood flows on the mainstem's north bank, and to allow some floodplain channel flows during floods but prevent overbank flows from the mainstem from entering the side channel. These structures appear to be robust enough to meet these objectives but regular routine monitoring is recommended to assess structure effectiveness and identify any necessary remedial measures.

Monitoring of bank erosion rates should also occur on the right bank downstream of the MB side channel, which lies within The Nature Trust Conservation Area, where up to 30 m of bank erosion occurred in 2006/07. Significant erosion on the south bank may affect channel pattern locally and thus have an erosion impact on the ERRPCA lands on the north bank. Rock groins, LWD structures or rock deflector vanes could be considered if bank erosion accelerates at these sites.

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Appendices

Appendix A. Plant species encountered in ERRPCA. F = forb; G = graminiform (grasses, sedges, rushes); P = pteridophyte (ferns and fern-allies); S = shrub; T = tree. N = native; I = introduced or exotic; N / I = origin uncertain or only some taxa introduced.

Species	Common Name	Native Status
Forbs		
<i>Achillea millefolium</i>	Yarrow	N
<i>Achlys triphylla</i>	Vanilla-leaf	N
<i>Adenocaulon bicolor</i>	Pathfinder	N
<i>Anaphalis margaritacea</i>	Pearly Everlasting	N
<i>Anemone lyallii</i>	Lyall's Anemone	N
<i>Aquilegia formosa</i>	Red Columbine	N
<i>Aruncus dioicus</i>	Goat's-beard	N
<i>Asarum caudatum</i>	Wild Ginger	N
<i>Aster modestus</i>	Great Northern Aster	N
<i>Boykinia elata</i>	Coast Boykinia	N
<i>Callitriche heterophylla</i> ssp. <i>bolanderi</i>	Diverse-leaved Water-starwort	N
<i>Campanula scouleri</i>	Scouler's Harebell	N
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	I
<i>Cardamine hirsuta</i>	Hairy Bitter-cress	I
<i>Castilleja hispida</i>	Harsh Paintbrush	N
<i>Cerastium fontanum</i> ssp. <i>triviale</i>	Mouse-ear Chickweed	I
<i>Chenopodium album</i>	Lamb's-quarters	I
<i>Circaea alpina</i>	Enchanter's-nightshade	N
<i>Cirsium arvense</i>	Canada Thistle	I
<i>Cirsium vulgare</i>	Bull Thistle	I
<i>Claytonia sibirica</i>	Siberian Miner's-lettuce	N
<i>Clinopodium douglasii</i>	Yerba Buena	N
<i>Collomia heterophylla</i>	Vari-leaved Collomia	N
<i>Comarum palustre</i>	Marsh Cinquefoil	N
<i>Corallorrhiza maculata</i>	Spotted Coralroot	N
<i>Crepis capillaris</i>	Smooth Hawksbeard	I
<i>Daucus carota</i>	Wild Carrot	I
<i>Dicentra formosa</i>	Pacific Bleeding-heart	N
<i>Digitalis purpurea</i>	Common Foxglove	I
<i>Epilobium angustifolium</i>	Fireweed	N
<i>Epilobium brachycarpum</i>	Tall Annual Willowherb	N
<i>Epilobium ciliatum</i>	Purple-leaved Willowherb	N
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	N
<i>Eriophyllum lanatum</i>	Woolly Eriophyllum	N
<i>Erythronium revolutum</i>	Pink Fawn Lily	N
<i>Euphrasia nemorosa</i>	Eastern Eyebright	I
<i>Filago minima</i>	Small Filago	I
<i>Fragaria vesca</i>	Wood Strawberry	N
<i>Fragaria virginiana</i>	Wild Strawberry	N
<i>Galium aparine</i>	Cleavers	N
<i>Galium trifidum</i>	Small Bedstraw	N

Species	Common Name	Native Status
<i>Galium triflorum</i>	Sweet-scented Bedstraw	N
<i>Geranium dissectum</i>	Cut-leaved Geranium	I
<i>Geranium robertianum</i>	Herb-robert	I
<i>Geum macrophyllum</i>	Large-leaved Avens	N
<i>Gnaphalium microcephalum</i>	Small-flowered Cudweed	N
<i>Gnaphalium uliginosum</i>	Marsh Cudweed	I
<i>Goodyera oblongifolia</i>	Rattlesnake-plantain	N
<i>Hieracium albiflorum</i>	White-flowered Hawkweed	N
<i>Hypericum perforatum</i>	Common St. John's-wort	I
<i>Hypochaeris radicata</i>	Hairy Cat's-ear	I
<i>Lactuca muralis</i>	Wall Lettuce	I
<i>Lactuca serriola</i>	Prickly Lettuce	I
<i>Lapsana communis</i>	Nipplewort	I
<i>Lathyrus nevadensis</i>	Purple Peavine	N
<i>Lemna minor</i>	Common Duckweed	N
<i>Leontodon taraxacoides</i>	Hairy Hawkbit	I
<i>Lepidium heterophyllum</i>	Smith's Pepper-grass	I
<i>Leucanthemum vulgare</i>	Oxeye Daisy	I
<i>Lilium columbianum</i>	Columbia Lily	N
<i>Linnaea borealis</i>	Twinflower	N
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	I
<i>Lycopus uniflorus</i>	Northern Water-horehound	N
<i>Lysichoton americanum</i>	Skunk-cabbage	N
<i>Madia glomerata</i>	Clustered Tarweed	N
<i>Madia madioides</i>	Woodland Tarweed	N
<i>Madia sativa</i>	Chilean Tarweed	N
<i>Matricaria discoidea</i>	Pineapple Weed	N / I
<i>Mentha arvensis</i>	Field Mint	N
<i>Mimulus guttatus</i>	Yellow Monkey-flower	N
<i>Mimulus moschatus</i>	Musk-flower	N
<i>Montia parvifolia</i>	Small-leaved Montia	N
<i>Myosotis laxa</i>	Small-flowered Forget-me-not	N
<i>Nemophila parviflora</i>	Small-flowered Nemophila	N
<i>Nuphar lutea</i>	Yellow Pond-lily	N
<i>Oenanthe sarmentosa</i>	Pacific Water-parsley	N
<i>Osmorhiza berteroi</i>	Mountain Sweet-cicely	N
<i>Petasites frigidus var. palmatus</i>	Palmate Coltsfoot	N
<i>Phacelia leptosepala</i>	Narrow-sepaled Phacelia	N
<i>Phlox gracilis</i>	Pink Twink	N
<i>Plantago lanceolata</i>	Ribwort Plantain	I
<i>Plantago major</i>	Common Plantain	I
<i>Potamogeton natans</i>	Floating-leaved Pondweed	N
<i>Potamogeton pusillus</i>	Small Pondweed	N
<i>Potentilla glandulosa</i>	Sticky Cinquefoil	N
<i>Prosartes hookeri</i>	Hooker's Fairybells	N
<i>Prunella vulgaris</i>	Self-heal	N / I
<i>Ranunculus acris</i>	Meadow Buttercup	I

Species	Common Name	Native Status
<i>Ranunculus repens</i>	Creeping Buttercup	I
<i>Ranunculus uncinatus</i>	Little Buttercup	N
<i>Raphanus raphanistrum</i>	Wild Radish	I
<i>Rorippa curvisiliqua</i>	Western Yellow Cress	N
<i>Rumex acetosella</i>	Sheep Sorrel	I
<i>Rumex conglomeratus</i>	Clustered Dock	I
<i>Rumex crispus</i>	Curled Dock	I
<i>Rumex obtusifolius</i>	Bitter Dock	I
<i>Sagina procumbens</i>	Bird's-eye Pearlwort	I
<i>Sanicula crassicaulis</i>	Pacific Sanicle	N
<i>Scutellaria lateriflora</i>	Blue Skullcap	N
<i>Senecio sylvaticus</i>	Wood Groundsel	I
<i>Senecio vulgaris</i>	Common Groundsel	I
<i>Sisymbrium officinale</i>	Hedge Mustard	I
<i>Sonchus asper</i>	Prickly Sow-thistle	I
<i>Sparganium angustifolium</i>	Narrow-leaved Bur-reed	N
<i>Spergularia rubra</i>	Red Sand-spurry	I
<i>Spirodela polyrhiza</i>	Great Duckweed	N
<i>Stachys chamissonis</i> ssp. <i>cooleyae</i>	Cooley's Hedge-nettle	N
<i>Stellaria crispa</i>	Crisp Starwort	N
<i>Stellaria media</i>	Common Chickweed	I
<i>Streptopus lanceolatus</i>	Rosy Twistedstalk	N
<i>Tanacetum vulgare</i>	Common Tansy	I
<i>Taraxacum officinale</i>	Common Dandelion	I
<i>Tellima grandiflora</i>	Fringecup	N
<i>Thalictrum occidentale</i>	Western Meadowrue	N
<i>Tiarella trifoliata</i> var. <i>laciniata</i>	Cut-leaved Foamflower	N
<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	Three-leaved Foamflower	N
<i>Trautvetteria carolinensis</i>	False Bugbane	N
<i>Trientalis borealis</i>	Broad-leaved Starflower	N
<i>Trifolium dubium</i>	Small Hop-clover	I
<i>Trifolium hybridum</i>	Alsike Clover	I
<i>Trifolium pratense</i>	Red Clover	I
<i>Trifolium repens</i>	White Clover	I
<i>Trillium ovatum</i>	Western Trillium	N
<i>Typha latifolia</i>	Common Cattail	N
<i>Urtica dioica</i>	Stinging Nettle	N / I
<i>Veronica arvensis</i>	Wall Speedwell	I
<i>Veronica beccabunga</i>	American Brooklime	N
<i>Veronica officinalis</i>	Common Speedwell	I
<i>Veronica peregrina</i>	Purslane Speedwell	N
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell	N / I
<i>Vicia americana</i>	American Vetch	N
<i>Vicia hirsuta</i>	Tiny Vetch	I
<i>Vicia sativa</i>	Common Vetch	I
<i>Viola glabella</i>	Stream Violet	N
Grasses, sedges, and rushes		

Species	Common Name	Native Status
<i>Agrostis capillaris</i>	Colonial Bentgrass	I
<i>Agrostis exarata</i>	Spike Bentgrass	N
<i>Agrostis gigantea</i>	Redtop	I
<i>Agrostis stolonifera</i>	Creeping Bentgrass	I
<i>Aira caryophyllea</i>	Silver Hairgrass	I
<i>Aira praecox</i>	Early Hairgrass	I
<i>Anthoxanthum odoratum</i>	Sweet Vernalgrass	I
<i>Bromus hordeaceus</i>	Soft Brome	I
<i>Bromus inermis</i>	Smooth Brome	I
<i>Bromus pacificus</i>	Pacific Brome	N
<i>Bromus vulgaris</i>	Columbia Brome	N
<i>Carex cusickii</i>	Cusick's Sedge	N
<i>Carex deweyana ssp. leptopoda</i>	Dewey's Sedge	N
<i>Carex hendersonii</i>	Henderson's Sedge	N
<i>Carex pachystachya</i>	Thick-headed Sedge	N
<i>Carex stipata</i>	Sawbeak Sedge	N
<i>Dactylis glomerata</i>	Orchard Grass	I
<i>Danthonia spicata</i>	Poverty Oatgrass	N
<i>Deschampsia elongata</i>	Slender Hairgrass	N
<i>Eleocharis obtusa</i>	Ovoid Spike-rush	N
<i>Eleocharis palustris</i>	Common Spike-rush	N
<i>Elymus glaucus</i>	Blue Wildrye	N
<i>Festuca occidentalis</i>	Western Fescue	N
<i>Festuca rubra</i>	Red Fescue	N
<i>Festuca subulata</i>	Bearded Fescue	N
<i>Festuca subuliflora</i>	Crinkle-awned Fescue	N
<i>Glyceria elata</i>	Tall Mannagrass	N
<i>Holcus lanatus</i>	Common Velvetgrass	I
<i>Juncus acuminatus</i>	Tapered Rush	N
<i>Juncus articulatus</i>	Jointed Rush	N
<i>Juncus covillei</i>	Coville's Rush	N
<i>Juncus effusus</i>	Common Rush	N
<i>Juncus ensifolius</i>	Dagger-leaved Rush	N
<i>Juncus tenuis</i>	Slender Rush	N
<i>Lolium multiflorum</i>	Italian Ryegrass	I
<i>Lolium perenne</i>	Perennial Ryegrass	I
<i>Lolium pratense</i>	Meadow Fescue	I
<i>Luzula fastigiata</i>	Forked Wood-rush	N
<i>Luzula multiflora</i>	Many-flowered Wood-rush	N
<i>Melica subulata</i>	Alaska Oniongrass	N
<i>Phalaris arundinacea</i>	Reed Canarygrass	N / I
<i>Phleum pratense</i>	Common Timothy	I
<i>Poa annua</i>	Annual Bluegrass	I
<i>Poa compressa</i>	Canada Bluegrass	I
<i>Poa nemoralis ssp. nemoralis</i>	Wood Bluegrass	N
<i>Poa pratensis</i>	Kentucky Bluegrass	I
<i>Scirpus microcarpus</i>	Small-flowered Bulrush	N

Species	Common Name	Native Status
<i>Vulpia bromoides</i>	Barren Fescue	I
<i>Vulpia myuros</i>	Rattail Fescue	I
Ferns and fern-like plants		
<i>Adiantum aleuticum</i>	Western Maidenhair Fern	N
<i>Athyrium filix-femina</i>	Lady Fern	N
<i>Dryopteris expansa</i>	Spiny Wood Fern	N
<i>Equisetum arvense</i>	Common Horsetail	N
<i>Equisetum telmateia</i>	Giant Horsetail	N
<i>Polypodium glycyrrhiza</i>	Licorice Fern	N
<i>Polystichum munitum</i>	Sword Fern	N
<i>Pteridium aquilinum</i>	Bracken Fern	N
Shrubs		
<i>Amelanchier alnifolia</i>	Saskatoon	N
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	N
<i>Cornus stolonifera</i>	Red-osier Dogwood	N
<i>Cytisus scoparius</i>	Scotch Broom	I
<i>Gaultheria shallon</i>	Sala!	N
<i>Hedera helix</i>	English Ivy	I
<i>Holodiscus discolor</i>	Oceanspray	N
<i>Ilex aquifolium</i>	English Holly	I
<i>Lonicera ciliosa</i>	Western Trumpet Honeysuckle	N
<i>Lonicera involucrata</i>	Black Twinberry	N
<i>Mahonia aquifolium</i>	Tail Oregon-grape	N
<i>Mahonia nervosa</i>	Dull Oregon-grape	N
<i>Malus fusca</i>	Pacific Crabapple	N
<i>Oplopanax horridus</i>	Devil's-club	N
<i>Paxistima myrsinites</i>	Falsebox	N
<i>Physocarpus capitatus</i>	Pacific Ninebark	N
<i>Ribes bracteosum</i>	Stink Currant	N
<i>Ribes divaricatum</i>	Wild Black Gooseberry	N
<i>Ribes lacustre</i>	Bristly Currant	N
<i>Rosa gymnocarpa</i>	Baldhip Rose	N
<i>Rosa nutkana</i>	Nootka Rose	N
<i>Rubus discolor</i>	Himalayan Blackberry	I
<i>Rubus leucodermis</i>	Black Raspberry	N
<i>Rubus parviflorus</i>	Thimbleberry	N
<i>Rubus spectabilis</i>	Salmonberry	N
<i>Rubus ursinus</i>	Trailing Blackberry	N
<i>Salix lucida ssp. lasiandra</i>	Pacific Willow	N
<i>Salix scouleriana</i>	Scouler's Willow	N
<i>Salix sitchensis</i>	Sitka Willow	N
<i>Sambucus racemosa</i>	Red Elderberry	N
<i>Spiraea douglasii</i>	Hardhack	N
<i>Symphoricarpos albus</i>	Common Snowberry	N
<i>Symphoricarpos hesperius</i>	Trailing Snowberry	N
<i>Ulex europaeus</i>	Orse	I
<i>Vaccinium parvifolium</i>	Red Huckleberry	N

Species	Common Name	Native Status
Trees		
<i>Abies grandis</i>	Grand Fir	N
<i>Acer macrophyllum</i>	Bigleaf Maple	N
<i>Alnus rubra</i>	Red Alder	N
<i>Arbutus menziesii</i>	Arbutus	N
<i>Picea sitchensis</i>	Sitka Spruce	N
<i>Pinus contorta</i> var. <i>contorta</i>	Shore Pine	N
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Black Cottonwood	N
<i>Prunus emarginata</i>	Bitter Cherry	N
<i>Pseudotsuga menziesii</i> ssp. <i>menziesii</i>	Douglas-fir	N
<i>Rhamnus purshianus</i>	Cascara	N
<i>Sorbus aucuparia</i>	European Mountain-ash	I
<i>Taxus brevifolia</i>	Pacific Yew	N
<i>Thuja plicata</i>	Western Redcedar	N
<i>Tsuga heterophylla</i>	Western Hemlock	N

Appendix B. Bird species encountered in ERRPCA. Species with an asterisk (*) showed some indication of breeding (nest, young, adults carrying food, etc.). Most or all of these species likely breed on the property.

Species	Common Name	Provincial (CDC) Status
<i>Anas platyrhynchos</i>	Mallard	Yellow
<i>Mergus merganser*</i>	Common Merganser	Yellow
<i>Cathartes aura</i>	Turkey Vulture	Yellow
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Yellow
<i>Actitis macularia</i>	Spotted Sandpiper	Yellow
<i>Patagioenas fasciatus</i>	Band-tailed Pigeon	BLUE (S3S4B)
<i>Strix varia</i>	Barred Owl	Yellow
<i>Selasphorus rufus</i>	Rufous Hummingbird	Yellow
<i>Megaceryle alcyon*</i>	Belted Kingfisher	Yellow
<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	Yellow
<i>Colaptes auratus</i>	Northern Flicker	Yellow
<i>Dryocopus pileatus</i>	Pileated Woodpecker	Yellow
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Yellow
<i>Empidonax traillii</i>	Willow Flycatcher	Yellow
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	Yellow
<i>Vireo cassinii</i>	Cassin's Vireo	Yellow
<i>Vireo huttoni</i>	Hutton's Vireo	Yellow
<i>Vireo gilvus</i>	Warbling Vireo	Yellow
<i>Corvus corax</i>	Common Raven	Yellow
<i>Progne subis</i>	Purple Martin	BLUE (S2S3B)
<i>Tachycineta thalassina</i>	Violet-green Swallow	Yellow
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	Yellow
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	Yellow
<i>Sitta canadensis</i>	Red-breasted Nuthatch	Yellow
<i>Certhia americana</i>	Brown Creeper	Yellow
<i>Troglodytes troglodytes</i>	Winter Wren	Yellow
<i>Regulus satrapa</i>	Golden-crowned Kinglet	Yellow
<i>Catharus ustulatus</i>	Swainson's Thrush	Yellow
<i>Turdus migratorius</i>	American Robin	Yellow
<i>Ixoreus naevius</i>	Varied Thrush	Yellow
<i>Bombycilla cedrorum</i>	Cedar Waxwing	Yellow
<i>Vermivora celata</i>	Orange-crowned Warbler	Yellow
<i>Dendroica petechia</i>	Yellow Warbler	Yellow
<i>Dendroica coronata</i>	Yellow-rumped Warbler	Yellow
<i>Dendroica nigrescens*</i>	Black-throated Gray Warbler	Yellow
<i>Dendroica townsendii</i>	Townsend's Warbler	Yellow
<i>Oporornis tolmiei</i>	MacGillivray's Warbler	Yellow
<i>Geothlypis trichas</i>	Common Yellowthroat	Yellow
<i>Wilsonia pusilla</i>	Wilson's Warbler	Yellow
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	Yellow
<i>Piranga ludoviciana</i>	Western Tanager	Yellow
<i>Pipilo maculata</i>	Spotted Towhee	Yellow
<i>Melospiza melodia</i>	Song Sparrow	Yellow
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	Yellow
<i>Junco hyemalis*</i>	Dark-eyed Junco	Yellow
<i>Carpodacus purpureus</i>	Purple Finch	Yellow
<i>Loxia curvirostra</i>	Red Crossbill	Yellow
<i>Carduelis pinus</i>	Pine Siskin	Yellow

Appendix C. Mammal species recorded in ERRPCA. Other mammal species, including beaver (*Castor canadensis*), red squirrel (*Tamiasciurus hudsonicus*), cougar (*Felis concolor*), and the blue-listed (S3) Roosevelt elk (*Cervus americanus roosevelti*), are known to occur on the property but were not recorded during this survey.

Species	Common Name	Status
<i>Sylvilagus floridanus</i>	Eastern Cottontail	Exotic
<i>Odocoileus hemionus columbianus</i>	Columbian Black-tailed Deer	Yellow
<i>Ursus americanus</i>	American Black Bear	Yellow

Appendix D. Reptile and amphibian species encountered in ERRPCA.

Species	Common Name	Status
<i>Elgaria coerulea</i>	Northern Alligator Lizard	Yellow
<i>Thamnophis elegans</i>	Western Garter Snake	Yellow
<i>Thamnophis sirtalis</i>	Common Garter Snake	Yellow
<i>Hyla regilla</i>	Pacific Treefrog	Yellow
<i>Rana aurora</i>	Red-legged Frog	BLUE (S3S4)
<i>Rana clamitans</i>	Green Frog	Exotic

Appendix E. Butterfly species encountered in ERRPCA

Species	Common Name	Status
<i>Ochlodes sylvanoides</i>	Woodland Skipper	Yellow
<i>Papilio rutulus</i>	Western Tiger Swallowtail	Yellow
<i>Papilio eurymedon</i>	Pale Swallowtail	Yellow
<i>Neophasia menapia</i>	Pine White	Yellow
<i>Celastrina echo</i>	Western Spring Azure	Yellow
<i>Phyciodes mylitta</i>	Mylitta Crescent	Yellow
<i>Limnitis lorquini</i>	Lorquin's Admiral	Yellow
<i>Cercyonis pegala incana</i>	Common Wood-nymph, <i>pegala</i> ssp.	RED (S2)

Appendix F. Terrestrial mollusc species encountered in ERRPCA.

Species	Common Name	Status
<i>Ariolimax columbianus</i>	Pacific Bananaslug	Yellow
<i>Arion rufus</i>	Chocolate Arion	Exotic
<i>Haplotrema vancouverense</i>	Pacific Lancetooth	Yellow
<i>Ancotrema sportella</i>	Beaded Lancetooth	Yellow
<i>Monadenia fidelis</i>	Pacific Sideband	BLUE (S3S4)

Appendix B: Public Consultations

Appendix B: Stakeholder Agencies and Organizations

The following agencies were contacted regarding the ERRPCA Management Plan. Initial contact was made in August 2007. A second contact was made in October 2007 as a reminder for the October open house, and a third in July 2008 to seek comments on the Draft Management Plan by September 30th, 2008.

Advisory Committees
<i>Regional Parks & Trails Advisory Committee (RPTAC)</i>
<i>Area E Parks and Open Spaces Advisory Committee</i>
<i>Area F Parks and Open Spaces Advisory Committee</i>
<i>Area G Parks and Open Spaces Advisory Committee</i>
<i>Area H Parks and Open Spaces Advisory Committee</i>
<i>District 69 Commission</i>
Funding and Operating Partners
<i>The Nature Trust</i>
<i>Ducks Unlimited</i>
<i>Pacific Salmon Foundation</i>
<i>Fisheries & Oceans Canada</i>
<i>BC Ministry of Environment</i>
<i>City of Parksville</i>
<i>Community Fisheries Development Centre (CFDC)</i>
<i>Englishman River Watershed Recovery Plan Steering Committee (LRWRP)</i>
<i>Neighbouring Landowners</i>
<i>Arrowsmith Water Services</i>
Emergency Services
<i>Arrowsmith Search and Rescue</i>
<i>Errington Fire Department</i>
<i>Oceanside RCMP Detachment</i>
<i>Parksville Fire Department</i>
<i>BC Ambulance, Parksville Station</i>
<i>Coastal Fire Centre, Ministry of Forests and Range</i>
Tourism Organizations
<i>Oceanside Tourism Association</i>
<i>Parksville & District Chamber of Commerce</i>
<i>Qualicum Beach Chamber of Commerce</i>
Community Interest Groups
<i>Arrowsmith Ecological Association</i>
<i>Arrowsmith Naturalists</i>
<i>Arrowsmith Community Enhancement Society</i>
<i>Mount Arrowsmith Biosphere Foundation</i>
<i>Mid-Vancouver Island Habitat Enhancement Society (MVIHES)</i>
<i>North Island Wildlife Recovery Association</i>
<i>Parksville Qualicum Fish & Game Association</i>
<i>Parksville Streamkeepers</i>
<i>Western Canada Wilderness Committee, Mid-Island Branch</i>
<i>Silver Spur Riding Club</i>
<i>Arrowsmith Mountain Bike Club</i>
<i>Greater Nanaimo Cycling Coalition</i>
<i>Parksville Newcomers Club</i>
<i>Mid-Island Volkssport Club</i>
<i>Parksville & District Historical Society</i>
<i>Cycling and Walking Matters</i>

<i>Oceanside Running Association</i>
<i>Education Institutions</i>
<i>School District No. 69</i>
<i>Malaspina University-College</i>
<i>Resident Associations</i>
<i>Errington Resident's Association</i>
<i>Midlegate Resident's Association</i>
<i>Utility Interests</i>
<i>Shaw Cablesystems</i>
<i>BC Transmission Corporation</i>
<i>BC Hydro</i>
<i>Terasen Gas</i>
<i>Forestry</i>
<i>TimberWest</i>
<i>Island Timberlands</i>

Table 4.1a. Stakeholder agencies and organizations contacted

Discussions in person or by phone were conducted with the following organizations:

Regional Parks and Trail Advisory Committee (presentation made at meeting)
The Nature Trust: Tom Reid, Manager, Vancouver Island Conservation Land Management Program; and Jim Hope, BC Conservation Manager
Ducks Unlimited: Les Bogden, Area Manager
Fisheries and Oceans Canada: Margaret Wright, Restoration Biologist; Mel Sheng, Restoration Biologist; and Alain Magnan, Project Assessment Biologist
BC Conservation Foundation: James Craig, Fisheries Technician
BC Ministry of Environment: Dave Forman, Area Supervisor (Arrowsmith)
Community Fisheries Development Centre: Bob Grant, Executive Director; and Ardith Turney, Fisheries Habitat Coordinator
ERWRP Steering Committee (presentation made at meeting)
Arrowsmith Water Services: John Finnie, RDN General Manager Environmental Services
Errington Fire Department: Chief Colin Catton
Oceanside Tourism: Blain Sepos, Executive Director
Arrowsmith Watershed Coalition Society: Trevor Wicks
Silver Spur Riding Club: Barbara Smith (presentation made at meeting)
School District No. 69: Jim Powell, District Principal, Educational Programs
Malaspina University-College: Darren Hebert, Coordinator, Natural Resources Extension Program; Liz Gillis, Professor, Faculty of Science & Technology; Marilyn Funk, Professor, Faculty of Science & Technology; Eric Demers, Professor, Biology/Fisheries & Aquaculture
BC Transmission Corporation: Ray Read, Vegetation/Pest Biologist
BC Hydro: Mike Ciccotelli, Vegetation Maintenance Coordinator
Terasen Gas: Leona Schafer, Land Technician, Property Services

Appendix C: User Survey Results

45 Responses Received

1. What is your gender?

58% Female 42% Male

2. What is your age group?

0% 25 & younger 11% 25-44 years 53% 45-64 years 36% 65 & older

3. Which of the following best describes your household?

- 16% Single adult
- 47% Family with no dependant children
- 27% Family with dependant children
- 11% Other (please describe):
 - ** Grandparents, with both children and grandchildren visiting frequently.
 - * Retired Qualicum Beach resident.
 - Very senior! – active 80 years.

4. Which area best describes where you live?

- 71% Oceanside (greater Parksville-Qualicum Beach area)
- 2% Nanaimo
- 22% Other Regional District of Nanaimo. Where?
 - *** Errington. Nanoose Bay. Deep Bay. Area "G". Area "F". * Coombs. Bowser.
- 2% Other Vancouver Island. Where?
- 2% Other. Where?

5. How does your household typically get to the park (please select all that apply)?(allowed more than 1 answer)

- 62% By car. Where do you park?
 - ***** Allsbrook.
 - End of road opposite Rathrevor.
 - Weigh scale side – beside the road.
 - **** Top Bridge.
 - * Industrial Park Area.
 - ** Middlegate.
 - Chattell Road.
 - * Parks Parking Lot.
 - End of Mariner Drive.
 - End of Grafton.
 - Wherever there is space.
- 20% By bike
- 24% On foot
- 20% Other (please describe): ***** Horse. *** Truck & Horse Trailer, parking outside the Park and riding in.

6. Approximately how often does your household visit the park?

18%	More than once a week	38%	A few times a year
13%	Once a week	7%	Never
24%	Once or twice a month		

7. What does your household typically do at the park (please select all that apply)?

64%	Walk	22%	Horseback ride
2%	Run	18%	Bike
36%	Walk our dog	2%	Fish
38%	Naturalist activities (i.e. bird watch, etc.)		

20% Other:

- Attend and assist with fund raising events with Club Rides for Cancer Research.
- Christmas Bird Count.
- ** Picnics. ^ Swim. Sit. Read. Photography.
- Hassle illegal trail builders, garbage dumpers, ATV riders, and pot growers.

8. What do you think about the trails in the park?

	Strongly disagree					Strongly Agree					No Answer	
I am generally satisfied	11%	1	7%	2	16%	3	38%	4	18%	5	11%	
I find the trails easy to find	7%	1	13%	2	13%	3	27%	4	24%	5	16%	
I feel safe on the trails	9%	1	7%	2	13%	3	29%	4	24%	5	16%	
I wish I could learn more about the park's natural aspects	4%	1	7%	2	22%	3	24%	4	22%	5	20%	

Please explain:

- We like the smaller trails (single file mostly) as it's more connected with nature.
- We no longer use the parks because of the fees.
- Would like to know more of the wildlife that also inhabits the park.
- I don't know anything about the parks unique features.
- Regular use will keep many open. Restrict horses on small trails (too much damage). same for motor vehicles.
- The official opening of Top Bridge was my first in-depth visit. I was able to find my way but would not undertake an activity (hike) on my own or take others there until some more signage is installed – especially distances between points.
- I would like a park naturalist – but no building.
- There are too many trails, which have degraded and diminished the greenspace. Encroached on wildlife corridors and habitat. Who is responsible for their right of use? Time to restore wildlife habitat and keep people out of these critical areas adjacent to the Englishman River.
- Resident of Parksville for 2 years. It took months to find Top Bridge Park and others. Why no signs indicating where they are?
- I have been riding the trails there since 1999, when i built my home in Englishman River Estates off Middlegate. I moved here so I would have trails for riding accessible to my home.
- Keep it natural, don't build too much.
- Our club, when riding, if we see a tree over a trail, we will remove it and if a hole is present, mark it. So whoever passes after us will have a safe walk.
- There should be more signage on the work done in the River to enhance salmon spawning. More signs about no quad traffic.
- Trails are great to run on. Please do not harden them – too many trails are hard on the knees.
- It's great that there's still a little territory for the bears and cougars and small animals to exist (the deer have gone to town). However as people increase there will be problems.
- The occasional bear or cougar has never been a problem, but the frequent motorized vehicles (quads, etc.) often are. Unsupervised/out-of-control dogs sometimes a problem for wildlife (or other dogs).

9. Is there anything limiting your use of the park?

60%	No	4%	Insufficient parking
29%	Yes. Please select from below.	7%	Lack of facilities (shelters, benches, toilets, play areas, etc.)
4%	I don't know where the park is.	0%	I don't feel safe at the park
7%	I can't find my way around the park	24%	Other. Please explain below:

- ^ Fees.
- I believe the RDN is discouraging my use of the park because I ride Horseback.
- Muddy trails. drainage.
- More interpretation would generate a greater knowledge and appreciation of the area.
- River crossings.
- Terrain difficult for the aged.
- The ATV use in the park can be upsetting.
- When there are windstorms that bring trees down, we have to avoid certain trails or wait until the horse people clear the trails.
- Quads, dirt bikes, noise, garbage.
- I think regional district not crazy about horse usage.
- Trees down by storms block the trails.
- Better signage to the Park and Trails.

10. What would you like to see at the park?

31%	Toilets	51%	Interpretive signs and self-guided tours
42%	Kiosks with trail maps	4%	Nature Centre
20%	Other, please explain below		

- Don't know the difference between kiosks with maps and interpretative signs.
- Hitching Rails, and rest areas.
- More control over unauthorized motor vehicles using the trail system i.e. quads.
- Use wind thrown trees to construct 'improvements' – build as you go.
- Signs, which recommend to users to leave vegetation and wild life alone.
- Keep buildings and signs minimal. We don't need another biosphere scheme cluttering this greenspace.
- Signs with trail maps.
- The one road leading to the fish hatchery that a machine made a big mess of. The work was done on the little water way It used to be a smooth grassy road – now it is rocky, bumpy and has potholes.
- Garbage cans and regular collection on both sides.
- Rest areas.
- Horse trails????
- Information on how everyone (horse, bike and foot) shares a trail. Readily available from Horse Council of BC.
- I would like to see the park stay as natural as possible. There is already a toilet/outhouse.
- Ok as is, amenities mentioned here ok too.
- Toilets would be good but vandals make this high cost.
- Vandalism is a serious problem. If it wouldn't get trashed immediately. A sign with trails & flora & fauna one might see could be useful. (Distances should be on map, many people don't seem to realize how far it's between Allsbrook & Middlegate).
- I feel strongly that the emphasis in the Englishman River area should be safe habitat for flora and fauna, and that human impact should be limited. However, it was clear even before the area was officially park that humans will use it to capacity, and it is already beyond a "balance" between conservation, recreation and development uses. This makes it more important to limit the trails, permanent structures, and marketing of the park, and to patrol for (and prosecute) illegal and/or inappropriate activities.
- Traditionally, the biggest problems have been huge parties, fires, vandalism (including gas, alcohol, bombs, etc., thrown in the river: Parksville's water intake is downriver from the problem sites), large-scale garbage dumping, pot plantations, dogs running, other animals, and illegal hunting. Extensive public use of the park may help limit some of these uses, but can eventually have more even more impact on both mega and micro fauna. For example, before Allsbrook Road was paved, thousands of rough-skinned newts migrated across it every year. Now the few ones seen in the area are road kill, along with many snakes, deer, rabbits, birds, etc. Of course, in the case of reptiles and amphibians there are more global factors at work, but it underlines the importance of providing habitat in case populations ever do recover. In summary, I'm pleased that Englishman River Regional Park is a park, but concerned that the conservation importance of the area will be lost.

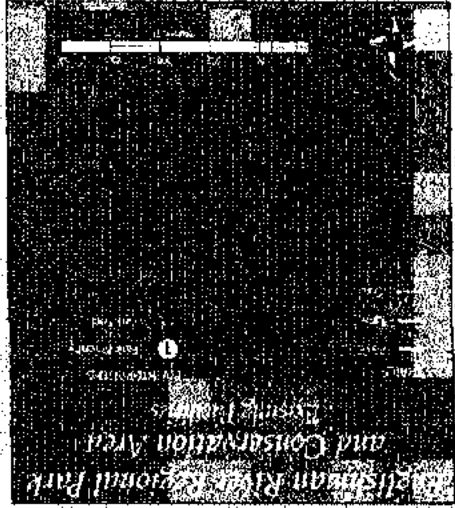
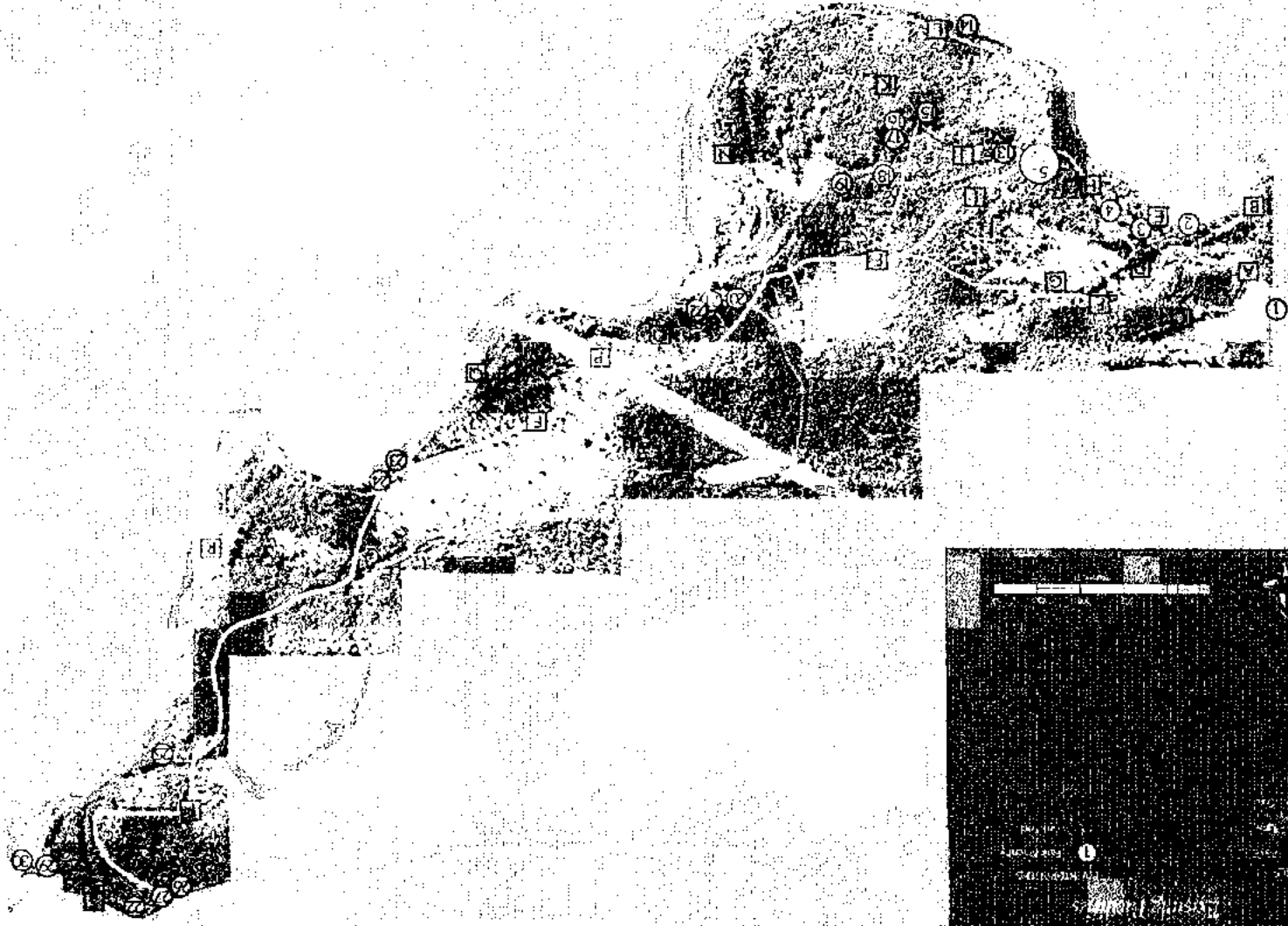
11. Is there anything else you would like to tell us? Complaints? Criticisms? Places in the park are special to you? Other ideas?

- An attached map to this questionnaire that shows the area you're specifically considering would be useful, as we may be talking about different areas. Which side of the river, for example.
- The fees discourage seniors from using the parks, which we paid for during all our working lives through our taxes. We used to walk and exercise in them extensively.
- The park has some of the best trails in the entire Oceanside area. Awesome trails and great scenery. On a negative note, I perceive mounting pressure to limit or remove Horseback riding from the park. Several of the trails actually started out as riding trails long before the Park was established. Yet it seems that the RDN discourages use by horse groups, even for such great causes as the Bob Preuss Memorial Against Cancer. Horseback Riding is as natural on the land as walking yet I feel we are regarded as some kind of threat.
- I would like to see it stay as much as possible as a nature park i.e. no playground, sports fields, etc.
- I walk with my dog in the Englishman River Estuary, Englishman River Prov. Park and top Bridge from Gregg Road in Parksville. The new bridge at Top Bridge is hard on the dog's feet. Perhaps rubber matting could be placed down one side for dogs walking across this new suspension bridge.
- Trail markers, stone & concrete lasts forever. How about some from the quarry on site? Simple shelters at vantage points – it rains a lot.

- Complaint – the last time that my husband and I were there, two people on ATV's approached from the Allsbrook Road side and spent time driving in and out of the river degrading the river's edge and disturbing the salmon. How can this type of activity be stopped or even monitored?
- Just as at ski resort areas and slopes, and particularly because there is no adjacent housing with residents, are you considering a system of wardens at the park who would "sweep" (i.e. go along) the trails each evening? Or after bad weather, to check all is well and users have left, no one is in trouble? Experienced hikers might volunteer for this.
- I would like the barricade on Middlegate to stop ATV's and motorcycles.
- Too much emphasis on Recreation – when is enough, enough? Allowing large horse groups, ATV's, motorbikes, mountain bikes, unleashed dogs free range on trails leads to misuse and abuse of our few remaining natural areas. Make one multi-use trail, away from the wildlife corridors and riverbanks and restrict activities and numbers. When will there ever be enforcement for the abusers?
- I wonder if the person who issued the permit for the Silver Spur Riding Club to host the Bob Pruess Memorial Trail Ride Against Cancer has ever checked to see what damage 100 to 120 (1200 lb) horses can do to a riverbank trail.
- The estuary of the river is important to me. The RDN maps list a 'trail' by the side of Plummer Road. That 'trail' is a sidewalk and increasingly a 'parking area'. The whole trail and boardwalk should be tidied up. Garbage and broom removed. An interpretive sign of birds to be seen, placed on the bird observation deck.
- The Englishman River is, apparently, the 2nd most endangered river in BC. It is a water source that flows to the sea, and increasingly the banks and riparian areas of the river are increasingly compromised by building development, noxious broom and increased foot traffic. Native plant re-introduction is a must. Preserve fish and wildlife habitat. Encourage citizens to be involved in "Friends of Englishman River" on a monitoring basis. Discourage camping or drinking in the estuary area. Signs stating "pack in – pack out".
- The river crossings, (since the bridge is not horse friendly) and trails along the river (with swimming holes) for horseback riding and to link these trails to other systems across the river(s) to Englishman Falls Park (after the logging) is devastated. Would be nice to keep those open for riding and walking. Also to link the greenspace north of Middlegate behind residences to Little Mt. Park and the park by hatchery with trails!
- Everything is pretty good, maybe just a little more care taken after work has been done to leave it how it was.
- Get bylaws or something in place to stop motorized traffic.
- Carry out well-publicized enforcement crackdowns against dirt bikes and ATV's.
- Beautiful park.
- Fees, small annual fee if you live practically next door???
- Management plan will need to address fire prevention steps taken to reduce the risk of unwanted fire starts. Suggest that the BC Forest Service "Fire Smart" Safety initiatives be looked at in order to reduce the risk to the community. Plan should also clearly identify whom? The fire response agency is for fires in the park. Currently the RDN has no agreement in place with the Provincial Government for forest fire response in any of its Parks.
- I have been riding these trails since the late 1980's and they are some of my favourite places to play on my horse. For me, the Park is one segment of the larger area encompassing the Crown Forest, Timberwest and Island Timberlands area (see map). I like to go out for at least a 2-hour ride and will travel 10 miles or so. All of this area is fabulous horse riding area! I am also a member of the Silver Spur Riding Club and we have been using these trails for many events each year and try and maintain the trails for safe and responsible horse use. I want to co-exist with the walkers and bikers along with all the people who live on Middlegate and surrounding areas. I would like to make sure that all users know the "rules of the road" for safe passage.
- I have been riding in the area that is now to be a park for almost 20 years. I would like to make sure that horses will always be able to access the trails. Most of the original trails were put in by horse owners. Of all the areas that I have ridden, that area is one of my favorites.
- Unfortunately, dirt bikes and similar vehicles do not help the condition of the trails; horse traffic is not much better
- Use has dramatically increased in the park since bridge opening, yet I see few people on the trails even when the parking lots are full. More use of Top Bride Park, but there the people are more concentrated along the riverside trail. (Hope that makes some sense.) It's nice when you can run/walk/bike without constantly running into people & dogs).
- A small sign with for example: "Note that the animals, plants, trees and various forms of life no longer have many of the large timbered acres in which to live. Just this. Be careful with them and co-exist for you can learn and benefit from what they have to show you." PS. No ATV's, motorcycles, etc.

Appendix D: Facility and Trail Inventory

Amenity and Trail Inventory



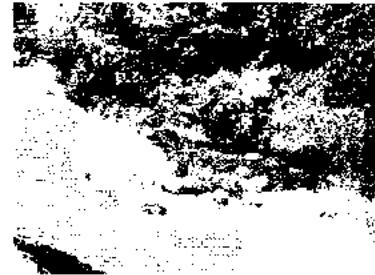
Inventory of Park Amenities



① Middlegate Entrance



② Intake Bench



③ Intake Valves



④ Rearing Pond Dock



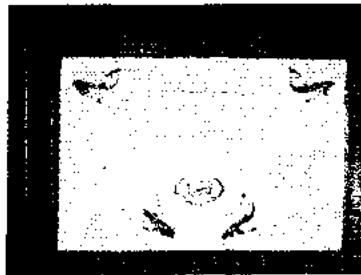
⑤ Hatchery Works



⑥ Hatchery Bridge



⑦ Hatchery Building 1



⑧ Building Signage



⑨ Hatchery Buildings 1 & 2



⑩ Hatchery Picnic Table



⑪ Trail Kiosk



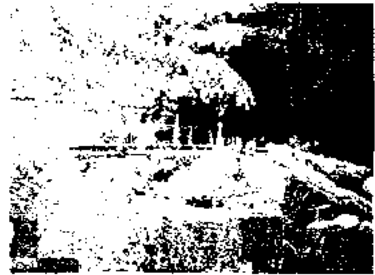
⑫ Pit Toilet



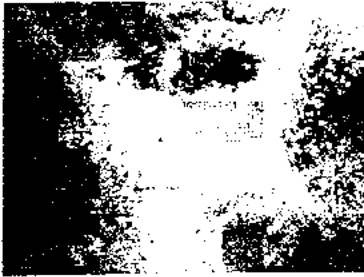
⑬ Channel Picnic Table



⑭ Steelhead Trail Bench



⑮ Clay Banks Bridge



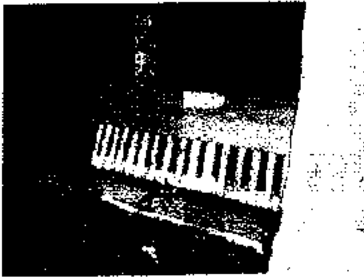
16 Boardwalk



17 Bench



18 Beaver Pond Bridge



19 Bench



20 Signage



21 Counting Station Bridge



22 Counting Station Bench



23 Long Run Signage



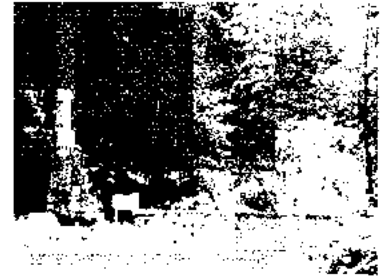
24 Long Run Bench



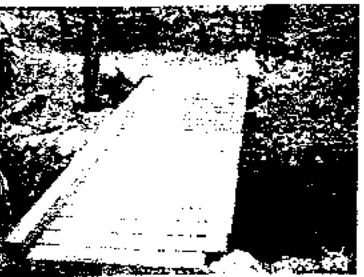
25 Weir



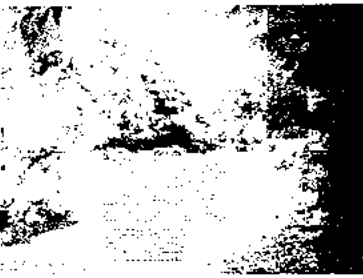
26 Allsbrook Signage



27 Allsbrook Entrance



28 Allsbrook Connector










29 Parking Area

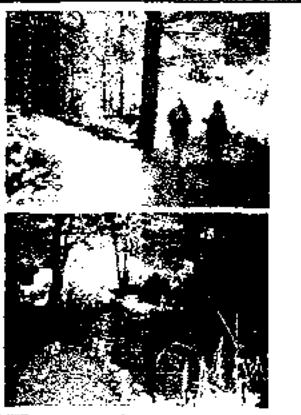














30 Top Bridge Crossing
D-3


Inventory of Park Trails

	Name	Length	Description	Images
A	For purposes of this report: Park Road, Middlegate Section	230m.	Unimproved loosely surfaced trail with some steep grade as trail travels out of river valley. Section through cut-block connecting to Middlegate Road consists of several smaller webbed trails. Previous landowners constructed ditches in places to limit vehicle access.	
B	For purposes of this report: Morrison Creek Connector	300m	<p>Narrow, unimproved trail. Trail exits ERRPCA into neighbouring Parksville-Quaticum Beach Wildlife Management Area.</p> <p>Trail web located at intersection with Middlegate Trail. Previous landowners constructed ditches in places to limit vehicle access</p>	 
C	For purposes of this report: Ridge Trail	530m	Unimproved trail. Exits ERRPCA onto neighbouring land within the Forestry Land Reserve.	
D	For purposes of this report: Park Road Connector.	150m	Steep, eroding connection from lower Chinook Pond Trail to Park Road.	

	Name	Length	Description	Images
E	Pipeline Trail	70m	Wide, gravel trail leading to rock grain. Used for maintenance access.	
F	For purposes of this report: Park Road.	3,675m	Existing gravel logging road. Suitable for use by all authorized user groups.	
G	Cuthroat Trail	520m	Existing gravel logging road. Suitable for use by all authorized user groups.	
H	Chinook Pond Trail	225m	Wide gravel trail suitable for use by all authorized user groups.	
I	Hatchery Drive	415m	Wide, gravel road. Serves as main access road for authorized vehicles and special event parking. Suitable for use by all authorized user groups. <i>Future opportunity to re surface trail as 'country lane'.</i>	

	Name	Length	Description	Images
J	Clay Young Channel Trail	Lower: 280m Upper: 210m	Two-tiered trail with narrow, lower gravel trail adjacent to channel and a wider upper sand trail	
K	Clay Banks Trail	770m	Wide trail on existing logging road. Suitable for use by all authorized user groups.	
L	Steelhead Trail	750m	Wide trail on existing logging road. Suitable for use by all authorized user groups. No significant changes required.	
M	Beaver Pond Section of Clay Young Channel Trail	670m	Narrow trail in places, surfaced with gravel and lined with logs where required.	

	Name	Length	Description	Images
	River Trail	950m	Rough trail susceptible to winter flooding. Travels through sensitive riparian habitats.	
	For purposes of this report: Powerline Connector	325m	Unimproved trail from counting station bridge to powerline. Several sections located close to failing river banks and may be prone to winter flooding.	
	For purposes of this report: Powerline Trail	925m	Informal use of powerline access road in both directions from park road. Southern route leads to river, Northern route exits park onto neighbouring	 
	For purposes of this report: Long Run Trail	425m	Unimproved trail from powerline to Long Run. Several sections close to sensitive riparian habitats failing river banks. Several sections of trail may be prone to winter flooding.	
	For purposes of this report: Salmon Trail	1500m	Unimproved trail from Long Run to Top Bridge crossing. Several sections impassable due to downed trees. One area pinched by river and steep rock face. Sections of trail prone to winter flooding.	

	Name	Length	Description	Images
S	Allsbrook Connector	165m	Newly constructed secondary trail connector. Parts gravelled and edged with logs. Suitable for use by all user groups.	

Total Trails: 13,085m
 Total Improved: 7,750m
 Total Unimproved: 5,335m

 Total Located on Existing Logging Roads: 6,425m