

West Creek Wetlands "BioBlitz"
Summary Report
August 2008

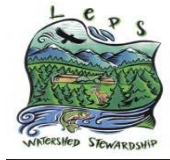
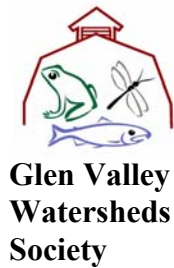


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Prepared for the SCCP: The South Coast Conservation Program (SCCP) established in 2005, is a multi-partner, landscape-level conservation program. The primary objective of the SCCP is to coordinate and facilitate the maintenance and recovery of species and ecosystems at risk in the Lower Mainland eco-region of the South Coast of British Columbia. <http://www.sccp.ca/>

West Creek Wetlands BioBlitz partners



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Re-connecting People & Nature



Cover images: Wood Duck Lake inset and fern leaf – Patrick Lilley, red-legged frog and western pearlshell mussel
Bob Puls, Pacific sideband snail – Pamela Zevit

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Executive Summary

Throughout British Columbia parks and protected areas, and more specifically regional parks and regional reserves play an important role in linking and protecting critical habitat for a range of species, many of which are at risk. Collaborative actions that enhance understanding of the diversity such areas support contributes to more effective, ecologically informed decision making by resource managers and the public. BioBlitzes¹ are one of many tools that can facilitate achieving such enhanced decision making. Part contest, part festival, part educational event and scientific endeavor, the West creek Wetlands BioBlitz, a first for the South Coast Conservation Program (SCCP) and Metro Vancouver Regional District (MVRD) Parks offered an innovative approach to identifying species and ecosystem diversity for managed lands.

The site chosen for piloting the BioBlitz in the Metro Vancouver Region was a recently acquired biodiversity hotspot – the West Creek Wetlands in the Township of Langley. The benefits of piloting the BioBlitz at West Creek was that it brought together a diverse set of stakeholder interests while enhancing pre-existing inventory.

The West Creek Wetlands BioBlitz identified one hundred and seventy species, including 20 new plant species and six species of conservation interest (federally or provincially listed species). Information gathered through the BioBlitz will contribute to the BC Conservation Data Center's (BCCDC) database and will be shared with land managers and relevant stakeholders. Mapping of species occurrences will be done in the future as part of a continued partnership with the Community Mapping Network and the MVRD. A goal for the SCCP is that the BioBlitz data will inform future decision making for species at risk not just occurring in the West Creek Wetlands Regional Park but other MVRD regional parks as well.

The West Creek Wetlands BioBlitz provided a valuable bridging opportunity for the SCCP and the MVRD. With its successful completion, the SCCP is looking forward to future partnerships of this nature. Such partnerships are integral to the work of the SCCP in coordinating and facilitating the maintenance and recovery of species and ecosystems at risk in the South Coast eco-region for the long-term.

¹ The history of BioBlitz - Wiki: <http://en.wikipedia.org/wiki/BioBlitz> , <http://www.pwrc.usgs.gov/blitz/>

Introduction

About "BioBlitzing"



"BioBlitz is designed to increase the public's awareness of the variety of life in their immediate neighborhood and the services these various species provide to improve the quality of their lives. What better way to address the topic than to invite people to share in our 24-hours of discovery and to experience the vast array of species that we can find in their neighborhood park in just one cycle of the day?" Center for Conservation and Biodiversity and Connecticut State Museum of Natural History
<http://web.uconn.edu/mnh/bioblitz/>

So what exactly is a "bioblitz"? The term was coined by National Park Service naturalist Susan Rudy while assisting with the first BioBlitz at Kenilworth Aquatic Gardens, Washington D.C. in 1996. A bioblitz has the dual aims of establishing the degree of biodiversity in an area while connecting local citizens, community groups and land use managers with concepts of conservation science. Often local parks are chosen for BioBlitz events as they often have many of the key partnerships or stakeholders in place to facilitate the event.

Specialists in various disciplines like botany, entomology and ornithology all play a role. Some bioblitzes become an annual event, such as the one which has been occurring since 2006 in the Resort Municipality of Whistler². Scientists establish a base at a point close to the area to be blitzed and provide expertise in identifying species found by the public as well as doing their own inspection of the area.

Ideally, a full bioblitz takes place over a full 24-hour period as different organisms are likely to be found at different times (like bats, insects etc.). While only daytime blitzes over shorter periods are equally popular, the results may less accurately show the variety of life in the area. Regardless, bioblitzes are an innovative way to link aspects of social and natural capital through re-establishing people's sense of wonder at exploring and being part of the natural world.

² <http://www.whistlerbioblitz.ca/>

Why a "BioBlitz" for the South Coast?



On the South Coast of BC, urban development and species at risk compete for limited space on the landscape. Images SCCP 2008



The South Coast of British Columbia from the Fraser River to Powell River is home to some of the highest levels of biodiversity and species at risk in the province. More than 30 federally listed species and 250 provincially listed species occur in one of most heavily developed regions in BC (SCCP 2007).

Threats:

- ❑ Habitat loss;
- ❑ Displacement by other species; and
- ❑ Habitat degradation.

Causes:

- ❑ Human activities.
- ❑ Invasive species.
- ❑ External stressors, notably climate change

We know very little about where and why many species occur, and the role places like regional parks play in sustaining their populations. The South Coast "BioBlitz" has the dual benefit of establishing a coarse level baseline for the degree of biodiversity in an area while increasing the public awareness of species at risk, invasive species and the need to conserve biodiversity.

Goals

Key deliverables and targets for piloting the bioblitz on the South Coast:

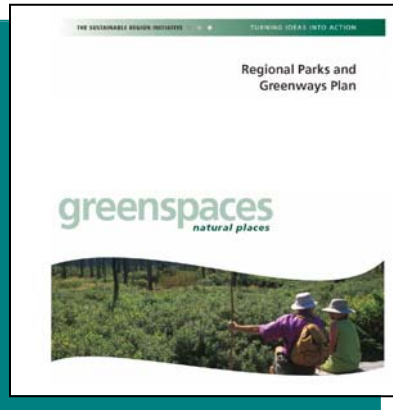
- ❑ Enhancing field identification tools under development by the SCCP for species at risk.
- ❑ Providing training to assist regional park staff and other staff/contractors in the identification of priority, locally relevant species at risk, as well as providing basic inventory methods to improve skill sets.
- ❑ Encourage bioblitz team participants to consider similar survey activities at other priority regional lands/parks in the Lower Mainland in order to add to the regional knowledge base.
- ❑ Report out and inform park managers and land use managers of the biodiversity values present in their management areas.

Objectives

The overall objective of a bioblitz is to increase and improve knowledge of species and ecosystem diversity (i.e. at a park or other managed landscape). The SCCP identified the bioblitz concept as an opportunity to work with project partners to achieve the following additional objectives:

1. Increase the capacity of regional park staff as frontline "managers" to identify species at risk occurring within their areas of management.
2. Engage park staff and other regional staff, community stewardship groups, naturalists, and the public in more effective conservation actions for species at risk.
3. Ensure information and adequate tools are available to maintain species and ecosystem diversity within regional parks and regional reserve areas.
4. Provide necessary baseline information to guide the long-term management and monitoring of species at risk and their habitats in these areas.

Metro Vancouver Regional Context



Significant work has been done to date in developing management priorities for habitat and species conservation in regional parks and protected areas in Metro Vancouver. Such initiatives as the Regional Parks and Greenways Plan³, the Biodiversity Conservation Strategy for Metro Vancouver⁴ and the recent Metro Vancouver Sustainability Framework⁵ have helped to create a necessary shift towards maintaining and sustaining biodiversity values. However gaps still exist for regional district resource managers and operational staff to work effectively and collaboratively around issues that involve species at risk. These gaps are not just ones of understanding

jurisdictional roles and responsibilities, they also include identifying the necessary components needed to sustain at risk species and ecosystem integrity within and adjacent to regional parks and protected areas. Improved biodiversity based decision making is a critical step to understanding the role other existing and future priority areas play across the regional landscape for conserving species and ecosystems at risk.

West Creek Wetlands Regional Park



Image: Google Earth 2008

Located in the Glen Valley area of north Langley between the Fraser River and the Trans Canada Highway, the West Creek Wetlands first came to the attention of the local community through the Glen Valley Watersheds Society and Langley Environmental Partners Society (LEPS) in 2004. The Greater Vancouver Regional District (now Metro Vancouver), the Township of Langley, the BC Trust for Public Lands and TLC The Land Conservancy joined forces to purchase and secure the area in 2007. Supporting over 170 species, including

³ <http://www.metrovancouver.org/planning/Pages/ManagementPlans.aspx>

⁴ <http://www.metrovancouver.org/planning/development/biodiversity/Pages/default.aspx>

⁵ <http://www.metrovancouver.org/about/sri/Pages/default.aspx>

up to 23 threatened or endangered species the park also has West Creek running through it, one of BC's 14 designated "sensitive" streams. Wood Duck Lake in the northern part of the property is maintained by the dam-building activities of a beaver population (TLC 2008)⁶.

Methods and Tools

While the SCCP's has a focus on species of conservation concern attempting an overall biodiversity "reading" through conducting a bioblitz is a complimentary goal. Participants were asked not only to confirm species such as native and invasive plants using a supplied checklist but look beyond the easily identifiable. Less charismatic species such as mollusks, amphibians, reptiles and rare plant and animal associations all reflect the unique values that the West Creek Wetlands represent to the local and regional landscape.

The diverse skill sets, local area knowledge and experience of the participants was key to the success of the bioblitz. "Blitz Teams" were assigned various segments of the park, with each segment representing a distinct ecological community (Figure 1). Each team had a team leader who had either familiarity with the ecological values of the site or had sufficient expertise in overseeing a field 'expedition' and assisting with identification. The team mosaic was complimented by naturalists, consultants and regional/senior agency park staff or other stakeholders who could work together to gather as much information as possible.

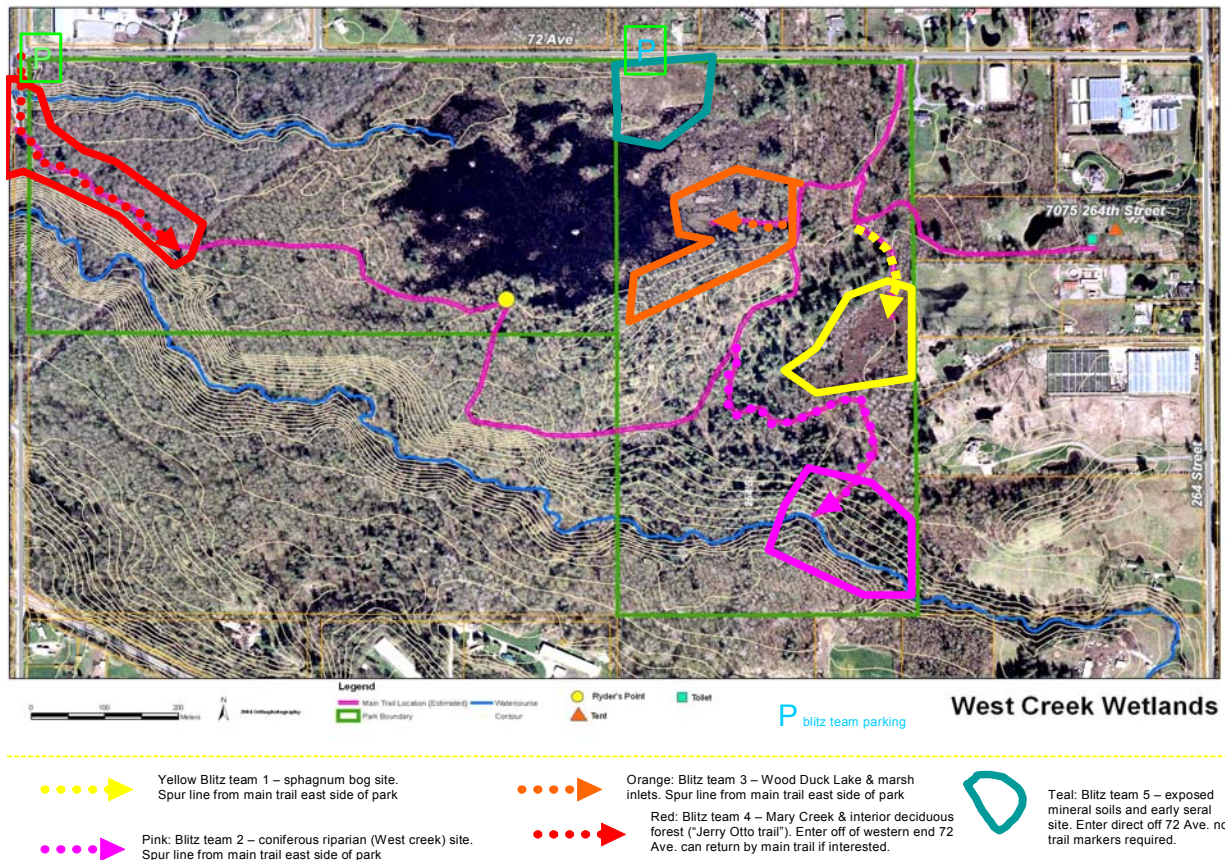


Figure 1. West Creek Wetlands BioBlitz sites and ecological associations

⁶ <http://www.conservancy.bc.ca/news.asp?id=731>

As part of the bioblitz toolkit, participants were briefed on identifying listed species (Table 1 page 11) as well as an introduction to using geo-referencing and mapping techniques such as global positioning systems (GPS) and ortho photography. Guidelines for documenting field observations and "accounts" from a South Coast species of conservation concern field guide under development by the SCCP were also provided. To compliment the bioblitz team data, "G" traps (minnow traps) and pitfall traps were installed in the lake, pocket wetlands and in potential travel pathways for small mammals and amphibians.

The information on the field forms and photo documentation gathered will assist in expanding occurrence data for many species in the BC Conservation Center Database (BCCDC) as well as through public portals such as the Community Mapping Network.

West Creek BioBlitz field forms⁷ (see Appendix 2 for completed forms)

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date:	Blitz Station ID:		
Name of recorder(s):			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc.	Elevation: Slope: Aspect:	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
moisture regime:			
Identified Disturbance or Threats:			
Adjacent Land Use:			
Connectivity & Ecological Integrity	Excellent	Good	Fair Poor

Blitz Tracking Sheet			
Species Common Name (please list scientific name if possible)	Comments (species is potentially rare,	invasives present, dominance etc.)	UTM (& Precision), photo & number

⁷ BioBlitz filed forms are based on BCCDC data collection standards and were modified to allow for use by specialists and laypersons and future digital reporting and data archiving.

Findings



Image: Patrick Lilley

Baseline information is a value added component to undertaking any BioBlitz. In 2005, Metro Vancouver Regional Parks (East Area) commissioned Strix Environmental Consultants to compile an inventory of the flora and fauna of the West Creek Wetlands, including a detailed breakdown of the areas ecological processes and species associations. This work was done with the assistance of naturalist Glenn Ryder. Local area knowledge from the Glen Valley Watersheds Society, the Langley Field Naturalists and the Langley Environmental Partners Society expanded the understanding of the complexity and diversity that the wetlands and adjacent West Creek uplands and forest communities support. The Strix report identified 23 provincially and federally listed plant and animal species, many of which are also priorities for conservation management and outreach for the SCCP (Henderson & Ryder 2005).

Table 1. Potential species of conservation interest for West Creek Wetlands Regional Park⁸

Scientific Name	English Name	Global	Provincial	COSEWIC/ SARA Sched.	BC List
Invertebrates					
<i>Allogona townsendiana</i>	Oregon Forestsnail	G3G4	S1S2	E (Nov 2002) Schedule 1	Red
<i>Pachydiplax longipennis</i>	Blue Dasher	G5	S3S4	-	Blue
Amphibians					
<i>Rana aurora</i>	Red-legged Frog	G4	S3S4	SC (Nov 2004) Schedule 1	Blue
<i>Rana pretiosa</i>	Oregon Spotted Frog	G2	S1	E (May 2000) Schedule 1	Red
<i>Bufo boreas</i>	Western Toad	G4	S4	SC (Nov 2002)	Yellow
Reptiles					
<i>Chrysemys picta</i>	Painted Turtle	G5	S3S4	-	Blue
Birds					
<i>Botaurus lentiginosus</i>	American Bittern	G4	S3B	-	Blue
<i>Butorides virescens</i>	Green Heron	G5	S3S4B	-	Blue
<i>Ardea herodias fannini</i>	Great Blue Heron, <i>fannini</i> subspecies	G5T4	S3B.S4N	SC (May 1997) Schedule 3	Blue
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	G4	S3S4B	HPC	Blue
<i>Tyto alba</i>	Barn Owl	G5	S3	SC (Nov 2001) Schedule 1	Blue
<i>Megascops kennicottii kennicottii</i>	Western Screech-Owl, <i>kennicottii</i> subspecies	G5T4	S3	SC (May 2002) Schedule 1	Blue
Mammals					
<i>Sorex bendirii</i>	Pacific Water Shrew	G4	S1S2	T (May 2000) Schedule 1	Red
<i>Sorex trowbridgii</i>	Trowbridge's Shrew	G5	S3S4	-	Blue
<i>Myotis keenii</i>	Keen's Long-eared Myotis	G2G3	S2	DD (Nov 2003) Schedule 3	Red
<i>Lepus americanus washingtonii</i>	Snowshoe Hare, <i>washingtonii</i> subspecies	G5T3T5	S1	-	Red
<i>Aplodontia rufa rufa</i>	Mountain Beaver, <i>rufa</i> subspecies	G5T4?	S1S2	SC (May 1999) Schedule 1	Red
<i>Clethrionomys gapperi occidentalis</i>	Southern Red-backed Vole, <i>occidentalis</i> subspecies	G5T5	S1	-	Red
Plants					
<i>Carex scoparia</i>	pointed broom sedge	G5	S2S3	-	Blue
<i>Leersia oryzoides</i>	rice cutgrass	G5	S2S3	-	Blue
<i>Polygonum hydropiperoides</i>	water-pepper	G5	S2S3	-	Blue
<i>Polygonum punctatum</i>	dotted smartweed	G5	S2S3	-	Blue
<i>Utricularia gibba</i>	humped bladderwort	G5	S3S4	-	Yellow

G1,S1: critically imperiled / G2,S2: imperiled / G3,S3: vulnerable / G4, S4: apparently secure / G5,S5: secure
 E endangered (A wildlife species facing imminent extirpation or extinction.)
 T threatened (A wildlife species likely to become endangered if limiting factors are not reversed.)
 XT extirpated.
 SC special concern (A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.)
 SX presumed extirpated
 DD data deficient (A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.)
 HPC High Priority Candidate – candidate species are those not yet assessed by COSEWIC but which are considered potentially at risk, grouped by High, Mid and Low Priority.

⁸ From "West Creek Biophysical Information Consolidation". Prepared by Henderson and Ryder for MVRD Parks 2005.

Five teams totaling twenty-one participants ventured out the afternoon of July 12 2008 to complete the West Creek BioBlitz, contributing one hundred and ninety (190) volunteer hours over the course of the day. In keeping with BioBlitz tradition the event spanned twenty four hours, with a bat and owl survey the evening of July 12 and a dawn chorus bird count the morning of July 13. The results of those efforts are listed below (Table 2). Details of species observed, sampled and identified are listed in Appendix 1; completed field forms by team are listed in Appendix 2.

Table 2. Species counts detected by team for the West Creek Wetlands BioBlitz

Observations and "Detections"	Observed in Remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)
Species of conservation interest		1	2	5	2
Previously undocumented flora detected (including invasive species)	5	3		4	1
Common flora and/or fauna identified (including invasive species)	57	45	42	56	28
Total number of species detected	62	49	46	65	31

- ❑ Total number of species identified during the West Creek BioBlitz – one hundred and seventy⁹, including 20 new plant species and six species of conservation interest (federally or provincially listed species).
- ❑ Team Four (deciduous woodland) and Team One (remnant bog) had the overall highest species counts as well as previously undocumented species.
- ❑ All of the new species documented were plants, with the greatest group being new mosses in the remnant bog.
- ❑ Team Four detected the greatest number of species of conservation interest.
- ❑ The red-legged frog was the most frequently detected species of conservation interest for the West Creek Wetlands bioblitz.
- ❑ Bat species believed to be present are Little and Big Brown bat and possibly the Yuma bat (based on bat detector echo location frequency readings and field observations).
- ❑ Night calling for owls used an amplified pre-recorded playback system and field vocalizations but no responses were detected. Barred owl and Western Screech Owl were however believed to be breeding in the area (and have been historically confirmed).
- ❑ A total of thirty bird species were detected during the dawn chorus count on July 13
- ❑ The most common invasive plant species was creeping buttercup (listed for all sites except the remnant bog).

⁹ Duplicate species sightings between teams have been removed.

Participant Feedback & Recommendations



Image: Kym Welstead

The contributions and perspectives of participants are integral to improving and fine-tuning future repetitions of any large-scale public event. There were suggestions early on that a bioblitz at the West Creek Wetlands may not provide for any new ‘enlightening’ information. However in reviewing the feedback from participants it is clear that all who attended, from professional biologists to MVRD staff to conservation partners found the experience worthwhile on many levels.

Some of the benefits listed by participants included:

- ❑ The event provided for improved networking among park partners and mentor-mentoree experiences with specialists and professionals.
- ❑ Participants were able to enhance their field identification and inventory skills for species of conservation concern as well as common species – skills they will apply in other endeavors.
- ❑ A greater understanding and appreciation of the diversity of the West Creek Wetlands and its value in the regional landscape was attained.
- ❑ Park partners came out of the bioblitz experience feeling more connected and enthused about conserving the West Creek Wetlands and biodiversity conservation in general.

In respect to learning outcomes for the SCCP and the MVRD, some key issues were balancing the amount of ‘classroom’ training with the overall field experience. Many participants felt that given the length of the event, it would have been more appropriate to scale back the time spent talking and increase the time spent doing. Options for the future include:

- ❑ Undertake planning for an event that can work with regional district budgeting timelines (e.g. plan in the fall for a following spring/summer event).
- ❑ Having bioblitz teams work in morning and afternoon shifts, with the morning shift to include the dawn chorus bird count.
- ❑ Not having the evening session (many participants could not stay beyond late afternoon to wait for dusk and the evening owl and bat survey)
- ❑ Have a pre-evening social the day before the BioBlitz instead of the morning training session to allow for participants to become acquainted with each other, the goals of the event and the tools for the bioblitz.

While it was hoped that the opportunity for stakeholder discussions on future park management needs could be part of the bioblitz, participant time availability precluded this from occurring. As the long-term infrastructure and management needs for the park form part of the ongoing partnership the MVRD and TLC – The Land Conservancy have with the park’s partners, there will be many opportunities to plan for the future in this regard.

What the results of the bioblitz indicate is that the West Creek Wetlands is a vibrant ecologically rich mosaic capable of supporting a host of common and at risk species and habitats. Invasive plant species, while a significant threat to biodiversity in other regional parks appear in their early stages of colonization and spread. The most prevalent species appears to be creeping buttercup and policeman's helmet, species that while having ramifications for the understory plant community, may not be as significant a threat as say Japanese knotweed or Lamium which are not present at this time. These two plant species are wreaking havoc in many riparian, wetlands and forests in other MVRD parks. The MVRD has already undertaken a detailed management strategy for invasive plant species in its regional parks as part of integrated pest management planning¹⁰. Any future actions should be implemented to ensure that the most problematic species do not gain a foothold and those in their early stages of colonization are treated before they reach more costly stages of infestation.

Other species which may have implications for biodiversity health in the park are bullfrog and green frog. Two amphibian species of concern for the long-term population viability of the most frequently encountered listed species in the park – the red-legged frog. Eradication or control of these non-native frogs would be a costly endeavor and is difficult at this stage of colonization. The MVRD and its partners may wish to focus on ensuring that the integrity of the many ecosystems the red-legged frog depends upon in the West Creek Wetlands is maintained. This means reducing fragmentation, protecting aquatic and terrestrial connectivity corridors and breeding and refuge habitats. In doing so many species like the red-legged frog which are sensitive to habitat loss and fragmentation stressors can hopefully continue to hold their own. These are all components that can form part of the management dialogue for the park and will benefit native diversity as a whole for the area.

Next Steps



Image: Adamah Consultants

The West Creek Wetlands Bioblitz appears to have been a successful event, achieving for the most part the desired goals and objectives as set out by the SCCP. In respect to the future of bioblitzes for the MVRD, discussions have already arisen about planning for 2009. These include a more high profile location such as Pacific Spirit Park and with it potential partnerships with the University of BC's organic Farm, the Biodiversity Center, Botanical Gardens and the Musqueam First Nations.

Key to the SCCP and its partners undertaking a bioblitz 'encore' will be ensuring appropriate timing and funding issues are strategically addressed, and allowing sufficient advanced planning with existing and potential partners. Bioblitzes as an outreach and partnership development activity can become part of the foundation toolkit for the SCCP. Along with research, management practices development and working with land use decision makers, such tools will assist the Program in more effectively actualizing the coordination and facilitation of species and ecosystem at risk conservation on the South Coast.

¹⁰ http://www.metrovancouver.org/services/parks_lscr/managingoutdoorsites/Pages/pest.aspx

Appendix 1 Species Detection Data West Creek Wetlands BioBlitz

Table 3. Species of Conservation interest observed for West Creek Wetlands Regional Park (July 12 2008)

Species Common name	Species Scientific name	Observed in Remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands	Observed in western Deciduous woodland	Observed in northside marsh and mineral soil foreshore	Global-Provincial Rankings
Blue Dasher	<i>Pachydiplax longipennis</i>						G5 S3S4 - Blue
Great Blue Heron, <i>fannini</i> subspecies	<i>Ardea herodias fannini</i>						G5T4 S3B,S4N SC (Mar 2008)
Pacific Sideband snail	<i>Monadenia fidelis</i>						G4G5 S3S4 Blue
Pointed broom sedge	<i>Carex scoparia</i>						G5 S2S3 - Blue
Red-legged Frog	<i>Rana aurora</i>						G4 S3S4 SC (Nov 2004)
Water-pepper	<i>Polygonum hydropiperoides</i>						G5 S2S3 - Blue

- G1,S1: critically imperiled / G2,S2: imperiled / G3,S3: vulnerable / G4, S4: apparently secure / G5,S5: secure
 E endangered (A wildlife species facing imminent extirpation or extinction.)
 T threatened (A wildlife species likely to become endangered if limiting factors are not reversed.)
 XT extirpated.
 SC special concern (A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.)
 SX presumed extirpated
 DD data deficient (A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.)
 HPC High Priority Candidate – candidate species are those not yet assessed by COSEWIC but which are considered potentially at risk; grouped by High, Mid and Low Priority.

Table 4. Flora species not previously identified in the West Creek Wetlands

Species Common name	Species Scientific name	Observed in Remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Blue wild rye	Elymus glaucus						native wetland grass
Bracket Fungus	Formetes igniaurus						on hemlock stump, not on 2005 inventory list
contorted pogonatum moss	Pogonatum contortum						not on 2005 inventory list
Common nipplewort	Lapsana communis						considered an invasive
European mountain ash	Sorbus aucuparia						may hybridize with native Sitka ash, unknown if invasive issue
Field horsetail	Equisetum arvense						not on 2005 inventory list
isothecium ("cattail") moss	Isothecium myosuroides						not on 2005 inventory list

Species Common name	Species Scientific name	Observed in Remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Kentucky blue grass	Poa pratensis						cultivated ornamental grass
Magellan's Sphagnum moss	Sphagnum magellan						not on 2005 inventory list
Mexican hedge nettle	Stachys mexicana						patch on left (south?) bank of channel - could be Cooley's hedge nettle?
northern starwort	Stellaria calycantha						
Oatgrass	Trisetum sp.						
Orchard grass	Dactylis glomerata						can be invasive
oyster mushroom							
pylasiella moss	Pylasiella sp.						on cottonwood, not on 2005 inventory list
Spagnum moss	Sphagnum subnitens						rare, on hemlock stump, not on 2005 inventory list

Species Common name	Species Scientific name	Observed in Remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Sphagnum moss	Sphagnum fimbriatum						not on 2005 inventory list
Square goose neck moss	Rhytidiadelphus squarrosus						incorrectly identified as R. loreus
Tinker's penny (Bog St. John's wort)	Hypericum anagalloides						
Tree Moss	Isoetecium myosuroides						not on 2005 inventory list
Water smartweed	Polygonum amphibium						may be "oriental lady's thumb" or Polygonum cespitosum
Western dock	Rumex occidentalis						patch on left (south?) bank of channel a weedy species

Table 5. Plant Species listings for West Creek wetlands Regional Park (based on Henderson & Ryder et al 2005)

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
alpine polytrichastrum moss	Polytrichum alpinum	bog, marsh edge at NE Wood Duck Lake						
American speedwell	Veronica beccabunga ssp. Americana	common, wetland edge						
American vetch	Vicia americana	clearings						
antifever fontinalis moss	Fontinalis antipyretica	rocks in West Creek and Wood Duck Lake Outflow Creek						
antitrichia moss	Antitrichia curtipendula	on Shore Pine in bog						
aulacomnium moss	Aulacomnium palustre	west side of Wood Duck Lake; snag/stump in bog						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Aulacomnium moss	Aulacomnium androgynum	on log, Wood Duck Lake shoreline						
awl-fruited sedge	Carex stipata	Wood Duck Lake, edge						
baldhip rose	Rosa gymnocarpa	uncommon						
baneberry	Actaea rubra (Ait.)	uncommon, forest						
bentgrass	Agrostis scabra hair	Wood Duck Lake edge						
bingleaf maple	Acer macrophyllum	common						
bitter cherry	Prunus emarginata	scattered						
black cottonwood	Populus balsamifera trichocarpa	common, scattered						
black gooseberry	Ribes lacustre	uncommon, scattered						
black hawthorn	Crataegus douglasii	uncommon						
black raspberry	Rubus leucodermis var. leucodermis	infrequent, scattered						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
black twinberry	Lonicera involucrata	common, around wetlands						
blackmat splashzone moss	Scouleria aquatica	rocks in West Creek						
blue skullcap	Scutellaria lateriflora	locally common, ponds and Wood Duck Lake edge						
blunt spike-rush	Eleocharis obtusa	Wood Duck Lake, edge						
bracken fern	Pteridium aquilinum ssp. lanuginosum	infrequent, scattered, small clearings, bog						distinct community at southern end of site #5 on large hummock
Brewer's bitter- cress	Cardamine breweri	few seen, West Creek						
broad-leaved starflower	Trientalis borealis ssp. Latifolia	locally common, forest						
bunchberry	Cornus canadensis	uncommon, bog						
buttercup	Ranunculus sp.	common, paths, etc.						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
California antitrichia moss	Antitrichia californica	on log in clearing, marsh at NE edge of Wood Duck Lake						
Canada goldenrod	Solidago canadensis	uncommon, paths, etc.						
cascara	Rhamnus purshiana	scattered						large mature second growth community at western boundary of site #5 - used to be harvested commercially
clasping twistedstalk	Streptopus amplexifolius var. amplexifolius	infrequent, forest						
coastal red elderberry	Sambucus racemosa	common						
common cattail	Typha latifolia	uncommon, Wood Duck Lake edge						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
common duckweed	Lemna minor	common, ponds, Wood Duck Lake						
common mare's-tail	Hippuris vulgaris	Wood Duck Lake edge						
common rush	Juncus effusus	Wood Duck Lake, edge marsh						
Cooley's hedge-nettle	Stachys chamissonis var. cooleyae	infrequent, forest wetland interface, West Creek						
cow-parsnip	Heracleum maximum	uncommon, clearings						
deer fern	Blechnum spicant	scattered						distinct community at northern end of site #5 near access point
devil's club	Oplopanax horridus	uncommon, West Creek						
Dewey's sedge	Carex deweyana	common, forest						
dicranoweisia moss	Dicranoweisia cirrata	on Shore Pine in bog; branch west side Wood Duck Lake						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
dicranum moss	Dicranum fuscescens	logs and ground in forest						
dicranum moss	Dicranum scoparium	stump at marsh edge NE Wood Duck Lake; snag and stump in bog						
dicranum moss	Dicranum tauricum	on large log at N shoreline of Wood Duck Lake; stump at marsh edge NE Wood Duck Lake						
dotted smartweed	Polygonum punctatum	uncommon, Wood Duck Lake edge						
Douglas' aster	Aster subspicatus var. subspicatus	uncommon, scattered,						
Douglas' neckera moss	Neckera douglasii	on log spanning Wood Duck Lake Outflow Creek						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Douglas' water-hemlock	<i>Cicuta douglasii</i>	Wood Duck Lake edge						
Douglas-fir	<i>Pseudotsuga menziesii</i>	common						
dull Oregon- grape	<i>Mahonia nervosa</i>	common, cedar forest						
enchanter's- nightshade	<i>Circaea alpina</i>	common, forest						
eurhynchium moss	<i>Eurhynchium praelongum</i>	rocks in West Creek						
false azalea	<i>Menziesia ferruginea</i> ssp.	uncommon						
false lily-of-the- valley	<i>Maianthemum dilatatum</i>	common, moist forest						
false Solomon's- seal	<i>Maianthemum racemosum</i>	uncommon, scattered forest and creek gullies						
field mint	<i>Mentha arvensis</i>	infrequent, Wood Duck Lake edge						
fireweed	<i>Epilobium angustifolium</i>	infrequent						
fissidens moss	<i>Fissidens limbatus</i>	on rocks along West Creek						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
floating-leaved pondweed	Potamogeton natans	uncommon, Wood Duck Lake						
fringecup	Tellima grandiflora	common, forest						
Geocalyx liverwort	Geocalyx graveolens	small hardhack island/clump at N edge Wood duck Lake						
giant horsetail	Equisetum telmateia ssp. Braunii	uncommon, wet areas						
goatsbeard	Aruncus dioicus	uncommon						
goose neck moss	Rhytidiadelphus loreus	forest						
grass-leaved pondweed	Potamogeton gramineus	uncommon, Wood Duck Lake						
greater bladderwort	Utricularia macrorhiza	common, Wood Duck Lake edge						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Greene slender toothwort	Cardamine nuttallii	forest near West Creek						
Hardhack	Spireae douglasii ssp. Douglasii	common, Wood Duck Lake, bog						
hemlock water-parsnip	Sium suave	locally common, Wood Duck Lake						
Hooker's fairybells	Prosartes hookeri var. oregana	infrequent, forest						
Hooker's willow	Salix hookeriana	uncommon, bog						
humped bladderwort	Utricularia gibba	uncommon, Wood Duck Lake edge						
hygrohypnum moss	Hygrohypnum ochraceum	on rocks in West Creek						
hypnum moss	Hypnum subimponens	from snag/stump in bog						
hypnum moss	Hypnum circinale	log in forest						
Indian-plum	Oemleria cerasiformis	common						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
isothecium moss	Isothecium stoloniferum	on Shore Pine in bog						
juniper polytrichum moss	Polytrichum juniperinum	small hardhack island/clump at N edge Wood Duck Lake						
king gentian	Gentian sceptrum	uncommon, bog						
Labrador tea	Ledum groenlandicum (Rhododendron groenlandicum)	uncommon, bog						
lady fern	Athyrium filix- femina ssp. Cyclosorum	common						
large-leaved avens	Geum macrophyllum ssp.	infrequent, paths						
Lepidozia liverwort	Lepidozia reptans	decomposing cedar stump N side Wood Duck Lake						
licorice fern	Polypodium glycyrrhiza	common, trees						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Liverwort sp.	Cephalozia sp	stump at marsh edge NE Wood Duck Lake; decomposing cedar stump N side Wood Duck Lake						
Lyell's orthotrichum moss	Orthotrichum lyellii	on vine maple						
Marchantia liverwort	Marchantia polymorpha	trail edge, forest						
marsh skullcap	Scutellaria galericulata	locally common, Wood Duck Lake						
marsh speedwell	Veronica scutellata	common in marsh edge						
marsh violet	Viola palustris var. palustris	locally common						
mountain sweet-cicely	Osmorhiza berteroi	uncommon						
nodding beggarticks	Bidens cernua	Wood Duck Lake, ponds						
Nootka rose	Rosa nutkana var. nutkana	infrequent, Wood Duck Lake						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
northern maiden-hair fern	Adiantum aleuticum	uncommon, West Creek						
northern water horehound	Lycopus uniflorus	scattered, Wood Duck Lake edge						
oak fern	Gymnocarpium dryopteris	uncommon, West Creek						
obtuseleaf scleropodium moss	Scleropodium obtusifolium	rocks in West Creek						
Oregon eurhynchium moss	Eurhynchium oreganum	forest floor						
Oval-leaved blueberry	Vaccinium ovafolium	one specimen, bog						
Pacific bleeding heart	Dicentra formosa	uncommon, cedar forest						
Pacific crab apple	Malus fusca	uncommon, bog						
Pacific ninebark	Physocarpus capitatus	common, Wood Duck Lake						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
Pacific sphagnum	Sphagnum pacificum	bog; the most abundant Sphagnum						
Pacific water-parsley	Oenanthe sarmentosa	common, Wood Duck Lake edge						
Pacific willow	Salix lucida ssp. lasiandra	uncommon. Bog						
paper birch	Betula papyrifera var. commutata	infrequent						
pathfinder	Adenocaulon bicolor	uncommon, forest						
pearly everlasting	Anaphalis margaritacea	uncommon, disturbed & open areas						
Philadelphia fleabane	Erigeron philadelphicus	near West Creek						
piggy-back plant	Tolmiea menziesii	common, moist forest						
Plagiochila liverwort sp. (prob. porelloides)	Plagiochila porelloides	stump at marsh edge NE Wood Duck Lake						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
plagiomnium moss	Plagiomnium insigne	on log spanning Wood Duck Lake Outflow Creek						
pointed broom sedge	Carex scoparia	Wood Duck Lake edge						
Porella liverwort	Porella navicularis	on log						
prairie sphagnum moss	Sphagnum palustre	bog						
purple peavine	Lathyrus nevadensis & L n. var. pilosellus	uncommon, clearings						
purple-leaved willowherb	Epilobium ciliatum ssp. ciliatum	common, Wood Duck Lake edge						
rattlesnake-plantain	Goodyera oblongifolia	uncommon, forest						
red alder	Alnus rubra	common						
Red Huckleberry	Vaccinium parvifolium	common						
red-flowering currant	Ribes sanguineum var. sanguineum	uncommon						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
red-osier dogwood	Cornus stolonifera	around Wood Duck Lake						
reed canary grass	Phalaris arundinacea	Wood Duck Lake, surrounding						
revolute hypnum moss	Hypnum revolutum	on large log, N shoreline of Wood Duck Lake						
rice cutgrass	Leersia oryzoides	1 specimen, Wood Duck Lake						
rough goose neck moss	Rhytidiadelphus triquetrus	forest						
salal	Gaultheria shallon	uncommon						
salmonberry	Rubus spectabilis	very common						
Scapania liverwort	Scapania sp.	rocks in West Creek						
Schreber's big red stem moss	Pleurozium schreberi	bog, west side Wood Duck Lake						
Schreber's dicranella moss	Dicranella schreberiana	clay bank along West Creek						
Scouler's willow	Salix scouleriana	uncommon						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
self-heal	Prunella vulgaris	uncommon, paths, etc.						
Selwyn's atrichum moss	Atrichum selwynii	trails, forest, swamp islands, small hardhack island/clump at N edge Wood Duck Lake						
Sharp beaked hazelnut	Corylus cornuta var. californica	common forest						
shore pine	Pinus contorta var. contorta	uncommon, bog						
Siberian miner's-lettuce	Claytonia sibirica	common						
Sitka columbine	Aquilegia formosa ssp. formosa	uncommon, forest						
Sitka spruce	Picea sitchensis	uncommon						
Sitka willow	Salix sitchensis	uncommon						
skunk cabbage	Lysichiton americanus	common, wet areas						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
small-flowered bulrush	Scirpus microcarpus	common, Wood Duck Lake						
Snake moss	Buckiella undulata	common on logs, forest						
Snowberry	Symphocaricarpus albus var. laevigatus	uncommon						
spiny wood fern	Dryopteris expansa	common						
splendid feather moss	Hylocomium splendens	forest, stump at marsh edge NE Wood Duck Lake						
spring water-starwort	Callitriche palustris (formerly C. verna)	Wood Duck Lake						
star-flowered false Solomon's-seal	Maianthemum stellatum	common, forest						
stinging nettle	Urtica dioica	common, decidous. Forest						
stink currant	Ribes bracteosum	uncommon, West Creek						
stream violet	Viola glabella	locally common						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
sweet gale	Myrica gale	uncommon, Wood Duck Lake						
sweet-scented bedstraw	Galium triflorum	common, forest,						
sword fern	Polystichum munitum	common						
tall blue lettuce	Lactuca biennis	edge of beaver dam pond, NW corner Wood Duck Lake						
tall mannagrass	Glyceria elata	Wood Duck Lake, edge marsh						
tetraphis moss	Tetraphis pellucida	decomposed cedar stumps						
thimbleberry	Rubus parviflorus	common, forest						
three-leaved foamflower	Tiarella trifoliata var. trifoliaa	common, forest						
threepetal (small) bedstraw	Galium trifidum	Wood Duck Lake edge						
tiger lily	Lilium columbianum	uncommon, forest						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
trailing blackberry	Rubus ursinus ssp. Macropetalus	common, forest						
trailing yellow violet	Viola sempervirens	locally common						
tree climacium moss	Climacium dendroides	on log spanning Wood Duck Lake Outflow Creek						
tree mat homalothecium moss	Homalothecium fulgescens	trunk, west side Wood Duck Lake						
trembling aspen	Populus tremuloides	uncommon, bog						
tufted loosestrife	Lysimachia thyrsiflora	one specimen, Wood Duck Lake						
vanilla-leaf	Achlys triphylla	common, forest						
vine maple	Acer circinatum	common						
water shield	Brasenia schreberi	abundant on Wood Duck Lake						
water-pepper	Polygonum hydropiperoides	common, Wood Duck Lake edge						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
water-purslane	Ludwigia palustris	common, Wood Duck Lake edge						
western bog-laurel	Kalmia microphylla ssp. occidentalis	uncommon						
western flowering dogwood	Cornus nuttallii .	uncommon						
western hemlock	Tsuga heterophylla	common						
western meadowrue	Thalictrum occidentale	uncommon						
western red cedar	Thuja plicata	common						
western trillium	Trillium ovatum var. ovatum	scattered, forest						
western trumpet	Lonicera ciliosa	uncommon						
wild ginger	Asarum caudatum	uncommon, forest						
wood strawberry	Fragaria vesca	uncommon, forest						
yellow monkey-flower	Mimulus guttatus	uncommon, bog and Wood Duck Lake						
yellow pond-lily	Nuphar lutea ssp. polysepala	uncommon, north side of Wood duck Lake						

Invasives

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in northside marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
bull thistle	Cirsium vulgare	clearings, NE property						
Canada thistle	Cirsium arvense var. horridum	clearings, NE property						
common burdock	Arctium minus	uncommon, clearings						
common hawthorn	Crataegus monogyna	uncommon						
cutleaf evergreen blackberry	Rubus laciniatus	uncommon, periphery						
European bitterweet	Solanum dulcamara var. dulcamara	on beaver dams, W1 & Wood Duck Lake						
hedge bindweed	Convolvulus sepium	beaver dam						
Himalayan blackberry	Rubus discolor	common, periphery and small wetlands						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
smooth hawksbeard	<i>Crepis capillaris</i>	uncommon, clearings						
sweet amber	<i>Hypericum androsaemum</i>	forest trail, E side						
common dandelion	<i>Taraxacum officinale</i>	clearings, NE						limited occurrence
common foxglove	<i>Digitalis purpurea</i>	scattered, clearings, forest openings						
creeping buttercup	<i>Ranunculus repens</i>	moist clearings						
dovefoot geranium	<i>Geranium molle</i>	clearings, NE property						
feral wasabi	<i>Wasabia japonica</i>	scattered in understory, moist, shady sites East side of property						
ground-ivy	<i>Glechoma hederacea</i>	clearings, NE property						
hairy cat's-ear	<i>Hypochaeris radicata</i>	clearings						

Species Common name	Species Scientific name	Comments (Henderson 2005)	Observed in remnant Bog site (Yellow team 1)	Observed in West Creek riparian forest (Pink Team 2)	Observed in Wood Duck Lake marsh and adjacent forested wetlands (Team 3)	Observed in western Deciduous woodland (Team 4)	Observed in north marsh and mineral soil foreshore (Team 5)	Comments based on Blitz inventory Review
hemp-nettle	Galeopsis tetrahit var. tetrahit	scattered						
lady's-thumb	Polygonum persicaria	beaver dam, outflow Wood Duck Lake						
marsh cudweed	Gnaphalium uliginosum	beaver dam, Wood Duck Lake						
policeman's helmet	Impatiens glandulifera	abundant along West Creek						
purple loosestrife	Lythrum salicaria	2 locations: NW and NE portions of Wood Duck Lake						
Robert's geranium (herb Robert)	Geranium robertianum	scattered, near property edges						
small touch- me-not	Impatiens parviflora	uncommon, West Creek						
tansy ragwort	Senecio jacobaea	West Creek 1 location						
wall lettuce	Lactuca muralis	scattered						
yellow archangel	Lamium galeobdolon	NE corner of property / along adjacent property						

Table 6. Dawn chorus bird sightings for July 13

Species Common name	Species Scientific name	Comments (from Henderson 2005)
American Goldfinch	Carduelis tristis	Wood Duck Lake, riparian zones common
American Robin	Turdus migratorius	Forest, common
Bald Eagle	Haliaeetus leucocephalus	common
Bewick's Wren	Thryomanes bewickii	Wood Duck Lake, riparian zones common
Black-capped Chickadee	Poecile atricapillus	Forest, common
Black-headed Grosbeak	Pheucticus melanocephalus	Forest, common
Brown-headed Cowbird	Molothrus ater	Wood Duck Lake edge, forest, common
Canada Goose	Branta canadensis	Wood Duck Lake and constructed ponds
Cedar Waxwing	Bombycilla cedrorum	Forest, Wood duck Lake, common
Common Yellowthroat	Geothlypis trichas	Wood Duck Lake edge
Downy Woodpecker	Picoides pubescens	Forest common
Great-blue Heron	Ardea herodias fannini	Wood Duck Lake, riparian zones common
Hooded Merganser	Lophodytes cucullatus	Wood duck Lake

Species Common name	Species Scientific name	Comments (from Henderson 2005)
Mallard	Anas platyrhynchos	Wood Duck Lake constructed ponds
Northwestern Crow	Corvus caurinus	Common
Dark-eyed junco	Junco hyemalis	Forest and forest edge common
Pacific Slope Flycatcher	Empidonax difficilis	Forest and forest edge common
Red Eyed Vireo?	Vireo olivaceus	Forest common
Red-winged Blackbird	Agelaius phoeniceus	Wood Duck Lake and constructed ponds
Rufous Hummingbird	Selasphorus rufus	Forest and forest edge common
Song Sparrow	Melospiza melodia	Wood Duck Lake, riparian zones, forest edge, common
Spotted Towhee	Pipilo maculatus	Wood Duck Lake, riparian zones, forest edge, common
Swainson's Thrush	Catharus ustulatus	Forests common
Tree Swallow	Tachycineta bicolor	Common throughout edges and open water adjacent to all habitats
Violet-green Swallow	Tachycineta thalassina	Common throughout edges and open water adjacent to all habitats

Species Common name	Species Scientific name	Comments (from Henderson 2005)
Virginia Rail	Rallus limicola	Wood duck Lake northeast
Western Tanager	Piranga ludoviciana	Forest, common but not abundant
Wilson's Warbler	Wilsonia pusilla	Wood Duck Lake, forests, riparian zones
Winter Wren	Troglodytes troglodytes	Forests common
Wood Duck	Aix sponsa	Wood Duck Lake

Appendix 2 BioBlitz Team Field Form Data

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date: July 12 2008		Blitz Station ID: Yellow Team 1- sphagnum bog & associated seepage zones	
Name of recorder(s): Adam Snow, Wendy Dadalt, Tomosz Gradowski			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc. : residual sphagnum peat over organic detritus	Elevation: Slope: Aspect::	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
moisture regime: moist			
Identified Disturbance or Threats: bog community is almost non-existent, potentially due to historic alteration of hydrological regime. Only remnant species present (e.g. Labrador tea, lodgepole pine). Reed canary grass is advancing amongst successional c			
Adjacent Land Use:		rural, acreage and hobby farm	
Connectivity & Ecological Integrity	Excellent	Good	Fair Poor

Team 1 Blitz Tracking Sheet (non-common species, previously not-listed or of conservation interest)			
Species Common Name (please list scientific name if possible)	Comments (species is potentially rare etc.)	invasives present, dominance etc.)	UTM (& Precision), photo & number
Holly tree		likely seed source	10. 536570.5441828
Bracket Fungus <i>Formetes igniaurus</i>	on hemlock stump, not on 2005 inventory list		
Tree Moss <i>Isothecium myosuroides</i>	not on 2005 inventory list		
<i>Pylaisiella sp.</i>	on cottonwood, not on 2005 inventory list		
<i>Pognatum contortum</i>	not on 2005 inventory list		
Square goose neck moss <i>Rhytidiadelphus squarrosus</i>	not on 2005 inventory list		
<i>Sphagnum magellanichum</i>	not on 2005 inventory list		
<i>Sphagnum fimbriatum</i>	not on 2005 inventory list		
<i>Sphagnum subnitens</i>	rare, on hemlock stump, not on 2005 inventory list		

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date: July 12 2008		Blitz Station ID: Pink Team 2 Riparian forest & West Creek	
Name of recorder(s): Bonnie Birss < Miriam Marshall, Bob Pul, Liz Birss			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc.: organic with loam overlaying till and clay	Elevation: Slope: Aspect::	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
moisture regime: dry to moist coniferous			
Identified Disturbance or Threats: some minor logging, evergreen blackberry, policeman's helmet and fireweed advancing somewhat			
Adjacent Land Use: Forest meadow			
Connectivity & Ecological Integrity	Excellent	Good	Fair Poor

Team 2 Blitz Tracking Sheet (non-common species, previously not-listed or of conservation interest)			
Species Common Name (please list scientific name if possible)	Comments (species is potentially rare,	invasives present, dominance etc.)	UTM (& Precision), photo & number
White mushrooms	small, pure white		#7978&81, 10.0680651. 5620175
Green lichen	only growing on south side of tree		#7983
Western pearlshell <i>Margaritifera falcata</i>	beds throughout creek substrate		#7986, 10.0680651. 5620175

Northern starwort <i>Stellaria calycantha</i>	chickweed relative		#7989&90, 10.0536456. 5441579
Sweet scented bedstraw <i>Galium triflorum</i>	uncommon in site		#7992&93, gps 4m from plant 10.0536484. 5441720
Mexican hedge nettle <i>Stachys mexicana</i>	patch on left bank of channel		#8013-14, 10.0536467. 5441728
Oyster mushroom sp.			#7991
Evergreen blackberry <i>Rubus laciniatus</i>		small patch within site	10.0536344.5441992
Unknown species - weed species			#8005
Unknown egg mass possibly caddis fly eggs			#8006-08
Red-legged frog <i>Rana aurora</i>			#8017, 18, 20, 21
Miscellaneous Comments:			
Cabbage white butterfly seen around creek area			

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date: July 12 2008		Blitz Station ID: Orange Team 3 Duck Lake (south side) and adjacent forested wetlands	
Name of recorder(s): Oliver Busby, Rhys Krannitz, Glen Howes			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc. Mainly organic soils overlaying clay	Elevation: 76m Slope: Aspect::	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
moisture regime:			
Identified Disturbance or Threats:			
Adjacent Land Use:			
Connectivity & Ecological Integrity	Excellent	Good	Fair Poor

Team 3 Blitz Tracking Sheet (non-common species, previously not-listed or of conservation interest)			
Species Common Name (please list scientific name if possible)	Comments (species is potentially rare,	invasives present, dominance etc.)	UTM (& Precision), photo & number
Red-legged frog <i>Rana aurora</i>			Nancy's camera# 204,05,06,07 10.536367.5442077
Pacific chorus frog	sitting on duckweed @ edge of lake		
	in abs pipe from beaver dam on trail crossing		Nancy's camera# 221- 222 10.536464.5442182
Cascara	growing out of beaver dam on trail crossing		Nancy's # 215, 217

		Himalayan Blackberry Rubus discolor ~120m ² in area	10.536428.5442138
Large fruiting bullrush	~10m ² area of coverage		
Miscellaneous Comments:			
Deer rub noted on willow, banana slugs noted, great blue heron observed			

* One minnow and one pitfall trap were set in Team 3's section but did not yield any capture results.

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date: July 12 2008		Blitz Station ID: Red team 4 - westside Deciduous woodland	
Name of recorder(s): Patrick Lilley, Kym Welstead, James Pesci, Annable Griffith, Margaret Bunbury			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc.	Elevation: Slope: Aspect::	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
moisture regime:			
Identified Disturbance or Threats:			
Adjacent Land Use:			
Connectivity & Ecological Integrity	Excellent	Good	Fair Poor

Team 4 Blitz Tracking Sheet (non-common species, previously not-listed or of conservation interest)			
Species Common Name (please list scientific name if possible)	Comments (species is potentially rare,	invasives present, dominance etc.)	UTM (& Precision), photo & number
Pacific Sideband snail <i>Monadenia fidelis</i>	next to slug on pathway, alder, big-leaf maple, deciduous forest, sitting thimbleberry & salmonberry	arion chocolate slug present	10.535554.5442122 +/- 16m
Robust lancetooth snail,	next to slug on pathway, alder, big-leaf maple, deciduous forest, sitting thimbleberry & salmonberry	arion chocolate slug present	10.535554.5442122 +/- 16m

Pacific Sideband snail <i>Monadenia fidelis</i>	found on trail, deciduous forest opening, alder, big-leaf maple, thimbleberry, understory dominated by tolmia (piggy back plant)		10.535867.5442047 +- 5m
Pacific Sideband snail <i>Monadenia fidelis</i>	pair found in July 3 site reconnaissance prior to Blitz event, @ Merry Creek bridge east side, 1.6 m up on overhanging western red-cedar branch		10.0535404.5442339
Blue dasher <i>Pachydiplax longipennis</i> (male)	defending perch on pond surface		10.535975.5442029 +- 7m 10.536075.5442050 +- 9m
Broom sedge <i>Carex scoparia</i>	western edge of Wood Duck lake		
Pacific forktail damselfly <i>Ischnura cervula</i>			
Four spotted skimmer <i>Libellula quadrimaculata</i>			
Western tiger swallowtail <i>Papilio rutulus</i>			
Tule Bluet damselfly <i>Enallagma carunculatum</i>			

* One pitfall trap was set in Team 4's section but did not yield any capture results other than chocolate arion slugs.

BioBlitz Station Evaluation Form		West Creek Wetlands Regional Park	
Date: July 12 2008		Blitz Station ID:	
Name of recorder(s): Janice Jarvis, Sian Krannitz, Jim Cuthbert, Marcia Baker			
Owner/Management Jurisdiction: Metro Vancouver Regional District			
Management Partners: TLC The Land Conservancy, Glen Valley Watershed Society			
Ecological Community CWH Variant comments		North American Datum (NAD) 1983	
dominant soil type: sand, loam, gravel, organic etc. Clay mineral with organic deposition. Site in early succession from wet meadow to moist deciduous woodland	Elevation:	UTM Coordinates at approximate site Center: 10. Precision (+/- m):	1:20000 Map # 92G018 1:50000 Map # 92G02 CHWK FD
	Slope: Aspect::		
moisture regime: moist-marsh influenced			
Identified Disturbance or Threats:			
Adjacent Land Use: Just south of 72 Ave, previously cleared in 1997			
Connectivity & Ecological Integrity	Excellent	Good	Fair
			Poor

Team 5 Blitz Tracking Sheet (non-common species, previously not-listed or of conservation interest)

Species Common Name (please list scientific name if possible)	Comments (species is potentially rare,	invasives present, dominance etc.)	UTM (& Precision), photo & number
Dog leaved rush(?) <i>Juncus ensifolius</i>	need id confirmation		Marcia photo#978
Bog St. John's wort <i>Hypericum anagolloides</i>			Marcia photo #979, Sian
Marsh speedwell <i>Veronica scutellata</i>			photo # 219
Clustered wild rose <i>Rosa pisocarpia</i>	need id confirmation		Marcia #975-6, Sian # 215-16 10.507819.5442295 +- 39m

Water pepper <i>Polygonum hydropiperoides</i>	description matches except lacks hair in leaf underside		Marcia#974. 973 10.536246.5442258 +- 10m
Dragonfly sp (likely blue dasher)	turquoise-blue		
Dragonfly sp (likely spotted skimmer)	black wings white abdomen		
Bladderwort sp?	yellow flower		Marcia#971-72 10.536246.5442258 +- 10m
*Virginia Rail <i>Rallus limicola</i>	(observed by P.Zevit & T. Gradowski during g-trap pull July 13 2008) on Wood Duck shoreline of this site		10.536228.544255 +- 10m
Red-legged frog tadpole <i>Rana aurora</i>	(collected by P.Zevit & T. Gradowski during g-trap pull July 13 2008) on Wood Duck shoreline of this site		10.536228.544255 +- 10m

*Two minnow traps were set in Team 5's section and yielded green, red-legged frog and northwestern salamander larvae as well as acilius diving beetles.