

# Biodiversity Conservation in the Metro Vancouver Region

Forum Proceedings

## Key Points and Potential Action Steps



Burrard Inlet  
Environmental  
Action  
Program



Fraser River  
Estuary  
Management  
Program



Cover image: The common spreadwing damselfly, *Lestes disjunctus*, is widely distributed in ponds and lakes across B.C. damselflies and dragonflies play an important role in biodiversity conservation as they are sensitive indicators of ecosystem health and water quality. Worldwide, assessments are being made of their conservation status. In this respect, they are one of the highest-profile invertebrates in conservation awareness, planning and action.



*Amanita muscaria* is the most famous of all toxic mushrooms and the classic toadstool of *Alice in Wonderland*. Mushrooms are the reproductive structures of fungi. Fungi are major decomposers in terrestrial ecosystems and therefore play an essential role in nutrient recycling. This common species of the Pacific Northwest can be found in October in Stanley Park after the first fall rains.

## Prepared for Burrard Inlet Environmental Action Program — Fraser River Estuary Management Program

Glenn Brown, PhD  
Arbutus Institute, Vancouver, BC  
glenn.brown@telus.net

### Project Supervision & Photo Labeling

Annemarie De Andrade  
BIEAP-FREMP

***A Special Thanks to the Biodiversity Conservation Strategy Steering Committee for their long-term commitment and significant contribution to Biodiversity Conservation in Metro Vancouver.***

September 2010



Environment  
Canada  
Canadian Wildlife  
Service

Environnement  
Canada  
Service Canadien  
de la faune





# Table of Contents



The sword fern, *Polystichum munitum*, is an abundant fern of the Pacific Northwest coastal forests, and a favourite with native plant enthusiasts and gardeners. Sword ferns were extensively used by First Nations in foods, as a medicine and in a contest that trained young men to hold their breath for a long time. Successful contestants were chosen and would become skilful deep-ocean divers.

- Executive Summary ..... 1
- Background ..... 2
- Purpose of this Document..... 3
- Speakers..... 4
- Breakout Sessions Concerning the Ten Strategic Directions ..... 6
  - Key Points from the Breakout Sessions ..... 7
    - 1 Institutional Arrangements ..... 8
    - 2 Legislation and Regulation ..... 9
    - 3 and 4 Land Use Planning and Development Processes ..... 11
    - 5 Secure Land ..... 13
    - 6 Protected Areas Management ..... 16
    - 7 Private Land Stewardship ..... 18
    - 8 Map, Monitor, Research ..... 20
    - 9 Education/Communication..... 22
    - 10 Implementation..... 24
- Exploring the Next Steps for Action ..... 26
  - 1 Documents from the Biodiversity Conservation Strategy Partnership ..... 27
  - 2 Getting Biodiversity Projects to Work ..... 29
- Discussion ..... 33
- References ..... 34



# Executive Summary

In April 2009, the Biodiversity Conservation Strategy Partnership (BCSP) hosted a Forum to launch the report *Strategic Directions for Biodiversity Conservation in the Metro Vancouver Region*. Almost ninety professionals with an interest in biodiversity attended the Forum. Participants were arranged into breakout groups to review and discuss the report's ten Strategic Directions and Opportunities for Action.

This document provides a summary of participants' comments and discusses background research and potential actions to support biodiversity conservation in the region. In general, the participants supported the strategic directions identified in the report. Participants also provided information about local activities and challenges, and made suggestions for better biodiversity protection. In addition to comments about specific biodiversity initiatives, the need for increased agency collaboration, education and training, legislation and municipal action was emphasized.



Numerous waterbirds use the protected waters of Burrard Inlet for feeding during winter. Western grebes and Barrow's goldeneye winter there in globally significant numbers, and in particular congregate in the English Bay-First Narrows area (picture). In the 1990's it was reported a total population of around 32,000 birds representing 36 species that were regular visitors or residents of the inner harbour. However in recent years, these numbers have declined especially in fish eating species such as gulls, grebes and loons.





# Background

The Biodiversity Conservation Strategy Partnership is an initiative under the Georgia Basin Action Plan involving Environment Canada, BC Ministry of Environment, Metro Vancouver, Burrard Inlet Environmental Action Program—Fraser River Estuary Management Program (BIEAP-FREMP), municipalities and conservation groups. The partnership was established in 2001 to evaluate the state of biodiversity through regional mapping and assess the key issues impacting biodiversity in the Metro Vancouver region.

In December 2008, the BCSP released the report *Strategic Directions for Biodiversity Conservation in the Metro Vancouver Region* to provide a framework that better integrates biodiversity into land use policies, plans and programs, supporting regional collaboration and effective conservation efforts on the ground.

The report discusses key findings of the partnership, roles and responsibilities amongst the complex jurisdictional environment and lays out a vision and goals for biodiversity conservation in Metro Vancouver. Based on ten guiding principles, the report identifies ten Strategic Directions and lists a series of Opportunities for Action.

To promote collaborative implementation of the Strategic Directions, the BCSP hosted a Public Forum in April 2009. The full Forum Proceedings and the Forum Video are available at [www.bieapfrempp.org](http://www.bieapfrempp.org)

---

A grey whale was spotted around English Bay for several days in September 2010, coming within just a few meters of the seawall in Stanley Park. It may or may not be the same animal observed in False Creek in May 2010 and has also been seen in Howe Sound and on the Sunshine Coast through the summer. Grey whales, *Eschrichtius robustus*, were nearly hunted to extinction on the west coast of North America by the 1970s. In recent years however, their numbers have been recovering and individuals are spotted in areas where they've not been seen for decades. Grey whales are currently provincially and federally designated as a species of Special Concern.



Photograph: Sam Huang



# Purpose of this Document

The purpose of these proceedings is to document the diverse perspectives of Forum participants representing federal, provincial, regional and local government agencies, conservation organizations, the private sector, and local communities. This document also outlines a series of available resources regarding biodiversity conservation and provides ideas for future program development.

Conserving biodiversity is a shared responsibility. Engaging agencies, organizations and individuals to commit to specific actions is a critical step forward in this process. Successful implementation of the Strategic Directions will require cooperation amongst the multitude of stakeholders in the region and the continued development of collaborative approaches.



Nine million people annually visit Stanley Park, a wildlife sanctuary in the heart of downtown Vancouver. This contrasting image reminds us that cities can play a key role in protecting and managing vulnerable ecosystems and biodiversity while providing people with invaluable benefits and opportunities to connect with nature.



# Speakers

## Opening Remarks

### **Annemarie De Andrade**

Program Manager BIEAP-FREMP

Ms. De Andrade introduced the day, pointing out the Partnership had completed its work and that “the implementation phase of their work now requires new champions and new partners.”

## Keynote Speaker

### **Mike Harcourt**

Former Premier of British Columbia

Mr. Harcourt described the historical background of the ‘environmental wars’ during 1987-1992 and the progress in public dialogue made by Stephen Owen’s Commission of Resources and the Environment and related efforts. He noted that, with the *Strategic Directions*, “we have set up the ‘whats’, we need work on the ‘how.’”

## Keynote Speaker

### **Faisal Moola**

Science Director for the David Suzuki Foundation;

Dr. Moola described BC’s rich biodiversity assets and the threats to them reported by Biodiversity BC. Emphasizing the great benefits of the ecosystem services provided by nature to people, he pointed out the weakness of existing legislation to protect biodiversity and urged “the implementation of a simple, clear law to recover our wildlife and ecosystems at risk and to prevent species from becoming at risk in the first place by protecting their habitat.”

## Speaker

### **Marian Adair**

Co-Chair of Biodiversity BC

Ms. Adair described the partnership of conservation NGOs and government organizations that make up Biodiversity BC and their work to conserve biodiversity, increase awareness of its importance and to provide tools and incentives to enable biodiversity conservation. She described a number of the 23 major findings of their status report Taking Nature’s Pulse. “The overriding message is: that biodiversity in BC is still in relatively good shape, but without immediate action is vulnerable to rapid deterioration, especially in light of climate change.”

## Speaker

### **Jan Kirkby**

Landscape Ecologist, Environment Canada

Ms. Kirkby described the Biodiversity Conservation Strategy Partnership and some of the major results of its work since 1999. She described research on habitat types, indicator species and an ecological classification system and major maps (three included with the Strategic Directions report) they generated. She also described other studies and reports, including the *Still Creek Watershed Case Study* describing management strategies, the *Framework for Action* which describes steps for implementing strategy, and the Metro Vancouver website where those two and other documents from the Partnership are available (see References section).

## Speaker

### **Erin Embley**

Regional Planner, Metro Vancouver

Ms. Embley described the background and main contents of the Strategic Directions document. She emphasized that, in addition to some background information, its focus was on a vision and 3 goals for biodiversity, ten strategic directions and the need for moving forward. She described the main features of the ten strategic directions.



# Breakout Sessions Concerning the Ten Strategic Directions



Southern Resident killer whales spend time along the west coast of British Columbia. This population of orcas, *Orcinus orca*, is listed as an endangered species in both Canada and the United States. Currently, with only 98 individuals remaining, they face many serious threats to their survival, including declining salmon stocks, physical and acoustic disturbance, and bioaccumulation of contaminants.





# Breakout Sessions Concerning the Ten Strategic Directions

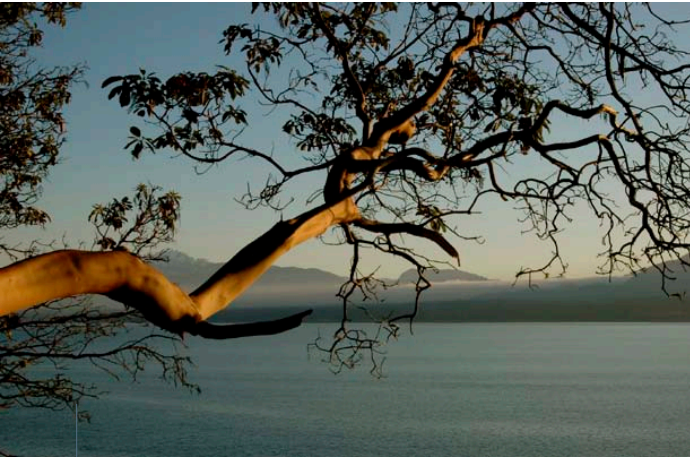
The breakout sessions were intended to solicit feedback on strategic directions, including identifying gaps, priorities for action and comments about how different organizations could be moving forward. Based on a review of gaps in biodiversity conservation regionally the strategic directions below were developed and framed within subject areas.



Strategic efforts, including the banning of DDT in 1972, saved the peregrine falcon or *Falco peregrinus* from the road to extinction. Currently, COSEWIC has assessed the subspecies *anatum* as Threatened, while the *pealeis* and *tundrius* subspecies are assessed as of Special Concern. Shorebird migrations in spring and summer bring large numbers of peregrine falcon to the Fraser River estuary, in particular to Boundary Bay.

	Subject Area	Strategic Direction
1	<b>Institutional Arrangements</b>	Build organizational capacity and develop champions within organizations
2	<b>Legislation and Regulation</b>	Develop flexible 'results-based' legislation that ensures accountability for achieving effective biodiversity conservation
3	<b>Land Use Planning</b>	Improve the incorporation of biodiversity conservation priorities into plans and policies
4	<b>Development Processes</b>	Ensure that development processes integrate biodiversity values and environmental innovation
5	<b>Secure Land</b>	Build on the existing regional park and Green Zone network including: habitats and corridors to protect ecosystem services and functions; unique and representative habitats; habitats for species at risk; and adequate buffers
6	<b>Protected Areas Management</b>	Manage, enhance and restore biodiversity and features of protected natural areas, habitats, and corridors
7	<b>Private Land Stewardship</b>	Develop and utilize incentives and education to encourage better uptake of existing programs and voluntary stewardship on private lands
8	<b>Map, Monitor, Research</b>	Ensure sufficient biophysical information from a regional to a site specific scale to make scientifically defensible, measurable, ecosystem-based land use decisions
9	<b>Education/Communication</b>	Promote better understanding of biodiversity, our region's natural assets, and habitats. Rekindle residents' connection to nature and encourage communities to become actively involved in conserving and restoring biodiversity
10	<b>Implementation</b>	Confirm agencies or partnerships to undertake or champion the following priority actions.

## Key Points from the Breakout Sessions



*Arbutus menziesii*, commonly known as the Pacific madrone or arbutus, is a magnificent evergreen tree that can live up to 500 years old. It often grows on shallow rocky soils near the coast, but also on rocky outcrops on upper hillsides on Vancouver Island. Once a widespread coastal tree ranging from Vancouver Island to California, the species is currently declining due to increasing development pressures and fire control measures in their habitat.

Key points from the breakout sessions summarize the comments made by participants on the Strategic Directions. Original words are used where possible, however, grammar has been edited and some items substantially shortened, without indicating where such edits took place, for the purpose of readability. In some places ideas from several speakers are summarized into a single point. Some off topic comments and repetitions of similar ideas are omitted.

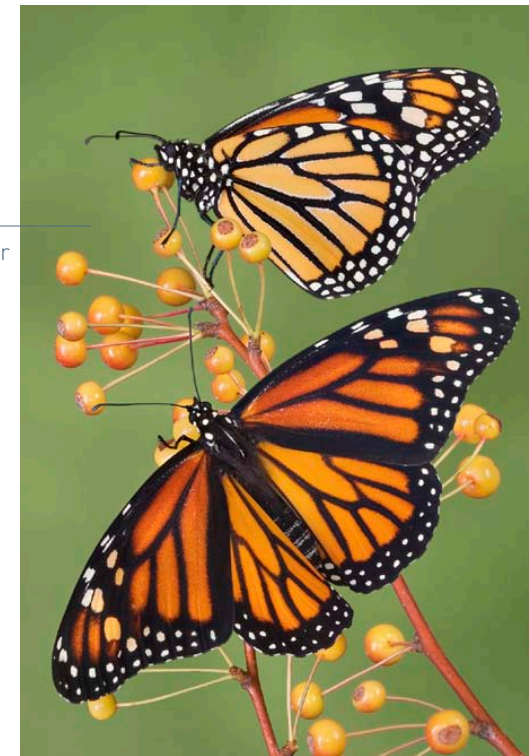
Because speakers spoke about many topics beyond those of their own designated Strategic Direction, comments are assembled under the particular Direction that they most closely apply to. That is, comments about education made during the 'Secure Land' breakout group are summarized under the 'Education/ Communications' Strategic Direction.

Participants' comments are divided into two categories under each Strategic Direction. Those are:

**Participant Comments on Strategy**, which address or comment on vision, goals or guiding principles, or a specific Strategic Direction in a broad sense; and

**Participant Comments on Tactics**, which address or comment on specific steps or challenges or locally appropriate actions to move forward with the Strategic Direction.

Monarch butterflies, *Danaus plexippus*, are known for their epic annual migration, a feat not performed by any other insect on earth. All monarchs from west of the Rockies fly to a few small areas in California, contrary to eastern populations that winter in a few locations in Mexico. Monarch butterflies can live up to nine months, outliving most other adult butterflies by 12 times.





# 1 Institutional Arrangements

Build organizational capacity and develop champions within organizations.

## Participant Comments on Strategy

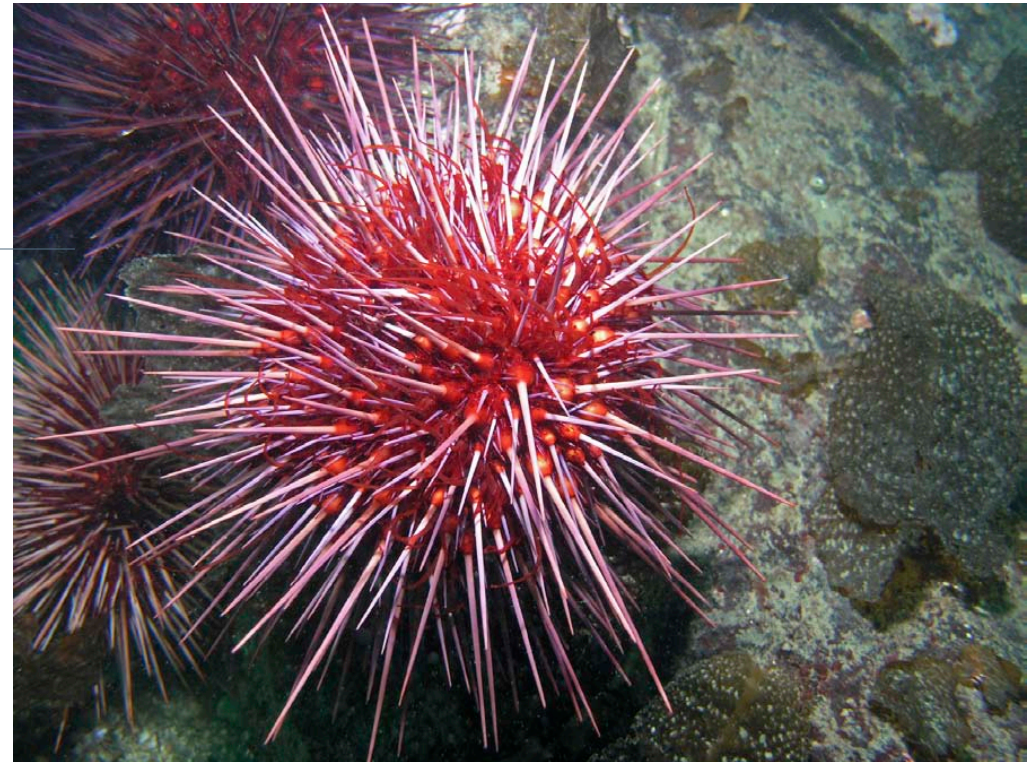
- A common theme is about making things work. Adaptive Management requires that you are explicit about goals, mechanisms, indicators and processes and that you use feedback for continuous improvement. By using adaptive management and developing the organizational capacity to understand its various stages you force these things to happen.

[Response] We are dealing with agencies that say they are using adaptive management but they are not really.

## Participant Comments on Tactics

- Use indicators and build capacity for change.
- There needs to be organized training to help staff do new or fairly new tasks.

Giant red sea urchin, *Strongylocentrotus franciscanus*, is the largest of all sea urchins and one of the longest-lived animals, with a lifespan of over 200 years. Sea urchins are ancient creatures that have been around for some 450 million years. They are an important source of food for sea otters, sea stars, crabs and wolf eel. Sea urchins are very sensitive to water quality and are therefore used as an indicator species to monitor pollution.





## 2 Legislation and Regulation

Develop flexible 'results-based' legislation that ensures accountability for achieving effective biodiversity conservation.

### Participant Comments about Strategy

- We need a strategy for biodiversity bylaws within municipalities (e.g., use the tools in the Green Bylaw Tool Kit).
- Large plans, such as those for the Port, the estuary and the Gateway transportation project, are imposed upon municipalities and override local planning. How can we deal with these changes?

### Participant Comments about Tactics

- It is difficult for municipalities to lead. If some municipalities set examples, that might engage the competitive nature of other municipal politicians to move forward.
- A municipality can't be a leader. Council members feel that by being a leader they are disadvantaged. It is difficult to convince councillors of the value of biodiversity protection.
- Municipal power is limited — the Province needs to lead with legislation.
- There is a problem in not having specific biodiversity protection and management legislation. Existing agencies need to have better regard for aspects of current legislation which have biodiversity responsibility, e.g. Fisheries Act requirement to protect fish habitat.
- The problem is getting reports and desired programs through managers and up to the politicians. Real change occurs when it come from councils' direction, when they have bought-in.
- The Integrated Storm Water Management Plan was effective because it was required through legislation. Use a similar strategy for biodiversity.
- We need more legislation; right now we have a patchwork across Metro Vancouver; consistency would be valuable.
- Abbotsford Municipality has the authority to require setbacks and buffers but our biggest challenge is that there is no enabling legislation above us. The province needs to give legislation to implement. That's the real challenge.
- We can strengthen bylaws for setbacks and storm water management. Let's focus on beefing up the tools that exist. Each municipality has a specific issue that is particularly salient. In Surrey it was silt and this led to storm water management changes. Each municipality needs to move on issues that are important to them.

Continued on next page...



Bumblebees, *Bombus spp.*, are the most important native pollinators of cranberries in British Columbia. They also pollinate about 15% of our food crops and have a critical role as pollinators of many native species. In recent years, there has been widespread concern about the overall decline of bumblebees. Possible causes are habitat loss due to deforestation and conversion of native habitats to agricultural land, pesticides, diseases and global warming.

## 2 Legislation and Regulation continued

### Comments about Tactics continued

- We should use the legislation we have to move biodiversity conservation forward, but use it in more innovative ways.
- We need to link biodiversity to infrastructure and development issues. Then look at every infrastructure and development clause in municipal acts that could be a lever to protecting biodiversity.
- Key to issues of legislation is enforcement. The legislation is there, and it isn't even being used.
- Riparian setbacks (Riparian Areas Regulation) standards should maintain the salmon resource—that's the theory—but this has yet to be done region wide, or even in a municipality.
- Riparian guidelines are great; we can use them for salmon. If you protect for salmon, you are also protecting for other species.
- We need a stronger Species at Risk act.
- There are gaps in the Species at Risk Act. Municipal involvement in the upcoming review is a priority.



*Anthopleura elegantissima* or pink-tipped anemone, is the most abundant species of sea anemone found on rocky, tide swept shores along the west coast of North America, from Alaska to Baja California. Recent studies on the medicinal properties of pink-tipped anemone tissue have demonstrated some anti-tumour properties but more research is needed.



Legislation and regulation played a crucial role in the recovery of California sea lions, *Zalophus californianus*. In the early 1940's commercial fishing was curtailed and in the 1970's DDT was banned and the Canadian Federal Fisheries Act and the U.S. Marine Mammal Protection Acts were passed prohibiting the killing of California sea lions. They are abundant today, however scientists are alarmed with significant cases of cancer in the species. Environmental pollutants are the prime suspect.

# 3 and 4

## Land Use Planning and Development Processes

- 3 Improve the incorporation of biodiversity conservation priorities into plans and policies.
- 4 Ensure that development processes integrate biodiversity values and environmental innovation.

**NOTE:** Directions 3 and 4 were discussed by the same groups in the breakout sessions and their comments are combined in the Proceedings document, therefore they are reported together here.

### Participant Comments about Strategy

- Integrate biodiversity into Official Community Plans (OCPs) at multiple scales. There are different issues at every scale. This will drive how development proceeds.
- It is easy for municipalities to buy lands. It is harder to influence the development process on the rest of the land: focus on that.
- We need to focus on ecosystem services.
- The focus has to be on restoring and protecting natural corridors.
- We've focused on the bottom-up approach (communication and education) to let decision-makers and politicians know what's wanted; plus top-down in terms of regulations (e.g. from province), plus target setting and working within targets, and ecosystem services incorporated into development.

### Participant Comments about Tactics

- City of Surrey long range planning—the priority is to review OCPs and focus on implementation of biodiversity conservation, connectivity and corridors in broad management plans. These steps will direct more detailed policies later on.
- Vancouver Parks Planning—Biggest priority issue is the OCP process and Park Master Plans and ensuring biodiversity is integrated into these processes. Get a handle on the inventory and gaps. Need to focus on the issue of fragmentation and connectivity—policies to protect habitat.
- Surrey—Priorities are Official Neighbourhood Plans (ONPs) and Official Community Plans (OCPs) coming up. Priority is incorporating the term biodiversity into the plans. The obvious—large stands of trees—but also the less obvious—brown fields are degraded but have future value. Focus on stewardship to manage smaller areas, instead of thinking only of acquisition.
- Priority is neighbourhood OCPs—learn to work with that group and bring concepts of biodiversity into neighbourhood plans.
- The biggest concern is preservation of riparian and wetlands along river and ensure municipalities along Fraser and UBC Electoral Area A, respect the environment in OCPs and within UBC. Currently their storm water runoff management is being ignored.
- We need to establish new goals and objectives for managing biodiversity in rezoning and preliminary plan approval. We need everyone on board for the objectives so we are not fighting over small trees and small swaths of lands. We need the goals and we need to communicate them.
- We need to protect tiny pockets of forests or marsh in urban areas.
- We do not have concrete numbers for percentages of area to protect and don't know how such targets would play out at the regional level. We need to prioritize certain land but we do not know how to spread out the costs if it places a burden on some developers.
- Here are some examples of success: North Vancouver Comprehensive Environmental Bylaw, Update ESP mapping to inform OCP reform, Sustainability Checklist, Burnaby's Environmental Framework, and City of Vancouver—requesting that developers do triple bottom line accounting, including GHG emissions.
- There seems to be a need for specific statements not general guidelines, e.g., No Net Loss of Habitat.
- In North Vancouver an environmental land use plan works. It only works on some sections though. We need an overarching theme strategy that can be used for everything. We also need a way to get developers to buy into these plans.

Continued on next page...



# 3 and 4

## Land Use Planning and Development Processes continued



Encouraging networks of interlinked natural areas made up of riparian corridors, nature reserves and private land through strategic planning, land purchasing and landscape stewardship are important measures to counter landscape fragmentation, restore habitat connectivity and maintain biodiversity.

### Participant Comments about Tactics continued

- We need to establish ecosystem approaches into the Metro parks planning systems. We are 40 years into the system, but at least it's getting done now.
- Why don't we have a Regional banking system to pool compensation money, to do more useful things? [Response] Who would take on the regional habitat bank?
- The Nature Legacy Fund was handed over to Metro Vancouver, which was more interested in recreation, so it lost the biodiversity focus. We need to revamp and strengthen the Nature Legacy Fund.
- There are lots of tools already but not enough use of them. We should compile the tools and make them easily accessible.
- Politicians, bylaw administrators, planners etc. all require a different strategy. We need to target those people who create policies. It is harder to target developers and builders. We should identify the main threats then work with those involved.
- Connectivity: protect and create or restore degraded corridors. Small patches of a few trees are key in the land use planning processes.
- In many development processes compensation is considered immediately, but it should be seen only a last resort (which is the Fisheries & Oceans Canada (DFO) approach). Most compensation is not successful and we are running out of places to do it.
- We need better targets for the region. For example the common 12% figure is not based in science; the Great Bear Rainforest 50% is a better number
- We need to bring agricultural land and areas not covered by Agricultural Land Reserve, which will be lost, under protection.
- We need to make sure the Ecological Health Plan deals specifically with biodiversity.
- We need to work with scientific groups to get sound data to help planning.
- We need to identify wildlife corridors.
- It could help to piggyback and leverage biodiversity with other initiatives such as climate change (municipal energy plans under Bill 27), food security (role of agricultural land and biodiversity, Agricultural Land Reserve (ALR), connectivity) and zero waste.
- Useful tools are: zoning, Ecologically Sensitive Areas plans, charters, sustainability checklists, and cross boundary success stories.
- We should build on successes and models such as ALR and Farmland Trusts.

## 5 Secure Land

Build on the existing regional park and Green Zone network including: habitats and corridors to protect ecosystem services and functions; unique and representative habitats; habitats for species at risk; and adequate buffers.

### Participant Comments about Strategy

- We need to connect with the Fraser Valley Regional District as well as Metro Vancouver to have a larger ecosystem.
- Once conservation priorities have been established, we should also look at land types that are currently under-represented for protection.
- Tie biodiversity in with climate change initiatives to recognize ecological goods and services.
- A key biodiversity concern is the lack of connectivity throughout the region. We don't have a body for managing corridors that cross boundaries. This is a critical piece that's missing. It is not enough to try to piece corridors together through OCPs; we need a coordinated picture among municipalities.



Mouth of the mighty Fraser—the Fraser River estuary is the largest of all estuaries along the Pacific coast of North America and one of the richest in the world. It supports the highest concentration of migratory birds in Canada and shelters two billion juvenile salmon for weeks or months before their ocean migration, making the Fraser the greatest salmon-producing river on earth.

### Participant Comments about Tactics

- We need more collaboration; e.g., a coordinating group or Steering Committee to manage land acquisition efforts of groups or municipalities, and to discuss key projects and areas for future effort
- In terms of Crown land, Westwood plateau in Coquitlam has been sold to a developer. Municipalities have money set aside to acquire lands, for different purposes, but it is secret information. There should be a mechanism for sharing this information between municipalities, so we can be strategic about acquisitions. These conversations need to happen and it's as simple as a confidentiality agreement.
- Land acquisition strategies are tricky since opportunities come up that don't often fit the strategy.
- We could use funds from habitat compensation, development cost charges, or dedicated fees for the purposes of land acquisition.
- In new neighbourhoods in Langley, when the developer applies for the Development Permit the money goes to buy greenway or wildlife tunnels (which can double as culverts during flooding).
- We need models for 'securing land' not just acquisition. We should provide options for subsidized management by owners and promote existing information.
- Is there an opportunity for corridor acquisition to tie in with other initiatives, e.g., trees in corridor act as carbon sink?
- Perhaps we should buy land around the CN Rail right-of-way to form a corridor.
- Surrey's current work includes the greater area around Surrey and long large corridors throughout the city but when planning for securing this land it gets difficult. We don't actually show corridors on public maps because of the potential outcry from public re impacts for private landowners.
- We need a regional list of priority habitats to allow integrated mapping of target priorities
- Environmental stewardship groups need an inventory that groups can identify and work with in order to purchase land as corridors.
- It is extremely important to update the wetland land inventory
- Local governments favour corridors for recreation rather than wildlife.
- Land for recreation is a priority for acquisition but that does not include a lot of land next to watercourses that could be used for habitat connectivity. We need to prioritize wetland/riparian inventory to help with connectivity and adopt priorities including recreation.

Continued on next page...

## 5 Secure Land continued



Courtesy of Burns Bog Conservation Society. Photograph: Kristine Krynitzki

A globally unique ecosystem and one of Canada's largest undeveloped land masses within an urban area, Burns Bog supports distinctive bog vegetation communities and recognized rare and endangered plant and wildlife species. Among them are the provincially red-listed species southern red-backed vole, *Myodes gapperi* (formerly *Clethrionomys gapperi*) and the Pacific water shrew, *Sorex bendirii*, and the provincially blue-listed Trowbridge's shrew, *Sorex trowbridgii*.

### Participant Comments about Tactics continued

- Prior efforts for land acquisition have related mostly to recreational parks but they are nonetheless beneficial to biodiversity. We need to pull out older lists and update them and coordinate that with a wetlands inventory.
- We should be connecting wetland, freshwater, marine corridors (natural corridors).
- We need to prioritize wetland/riparian inventory to help with connectivity and adopt priorities including recreation.
- Coordinate mapping as a basis for priority land acquisition.
- The South Coast Conservation Program Land Securement Committee could provide potential models for land acquisition.
- Securing land can easily become the responsibility of existing groups with that as their main charter such as The Land Conservancy.
- The Port authorities are banking vacant lands as compensation habitats.
- Tools: Through the land use bylaw, we can use riparian creek corridors, rights-of-way (hydro, etc.), trail design guidelines, conservation covenants, green bylaws toolkit, environmental assessments for new development, and a renewed Legacy Fund.
- Agricultural land covenants are used in places like Delta and expanded to other municipalities
- Restrictive covenants need to be protected and monitored (often seen as a dumping zone).
- Covenants need enforcement staff.
- You can put a conservation covenant on your own property and get a tax break for it.
- The BC Assessment Authority should be educated so that land values drop with a covenant in turn the taxes should drop for the landowner.
- Covenants don't work for natural areas protection because there is no monitoring. A study in Surrey showed 77% of all covenants were severely abused. It is worst if the covenant is held by the government, better if it's held by an NGO.
- Burrard Inlet has problems regarding protecting foreshore from private landowners.
- Check with DFO because they have interest in high-water-mark protection. In North Vancouver, we want to look at the marine foreshore next.
- The problem is there's no enforcement on the foreshore. People just go and do what they want; you can't stop them unless DFO comes out.

Continued on next page...





Although fairly common in the Greater Vancouver Region, the Pacific great blue heron, *Ardea herodias fannini* was federally designated as Special Concern by COSEWIC in 2003. Threats to these birds include the loss of breeding and foraging areas to urban development, forestry, hydroelectric power development and increasing predation from a growing bald eagle population. Its importance as an indicator of coastal ecosystem health is only now being recognized.

## 5 Secure Land continued

### Comments about Tactics continued

- Islands Trust has the ability to take part in a free Crown land transfer program where you can arrange full conservation. They're getting land surveyed now; it's only 17 hectares but is a connecting piece. It had a competition between islands regarding which lands were best for protection and doesn't have a lot of commercial value.
- There is a perception that wildlife corridors invite problem wildlife or problem activities.
- We need to provide more opportunity for people to gift properties to the municipality.
- Work with realtors and estate planning lawyers for distribution of information to clients.
- We should target land owners and establish pathways to promote ideas to them.
- There is a natural areas tax exemption—99 year trust agreement between municipalities and landowners. We need to share this information.
- It's very difficult to acquire and manage lands not just for people but for conservation. We need to manage lands for intrinsic values.
- We should organize a strategy for acquired land, spearheaded by strategic alliances.
- We should go back to the list of 17 priority areas and exert pressure to acquire those not yet purchased and adjacent lands.
- Municipalities are often unwilling to buy land in partnership without funding from federal/provincial governments
- Riparian areas are typically good connectivity corridors. A little used tool is Development Permit Areas (DPAs) to secure streamside corridors. We might be able to expand a bit into hydro right-of-ways and utility corridors, i.e., make them wider than riparian regulations would give.

[Response] Even with DPAs, it's the same thing—no one is managing.

- Lots of land is already fallow; it could be bought for parks purposes. The ALC sees the difference between this and buying "in-use" farmland.
- There is a difference between regulation and incentives, what would work best? Could there be a combination?

## 6 Protected Areas Management

Manage, enhance and restore biodiversity and features of protected natural areas, habitats, and corridors.

### Participant Comments about Strategy

- We need a partnership with the British Columbia Recreation and Parks Association (BCRPA), and an alliance between municipal/regional groups, universities, regional/municipal government. This should be a strategic alliance with representation from key land use managers.



*Lupinus polyphyllus*, or large-leaved lupine is a native plant of western North America commonly found in British Columbia along streams and creeks. It is one of the first plants to take root in disturbed ground, and plays a crucial role enabling other plants to thrive by adding nitrogen to the soil. Cultivars appear in a wide array of colors such as pink, blue, lilac, red, white, and yellow making it a popular garden ornamental.

### Participant Comments about Tactics

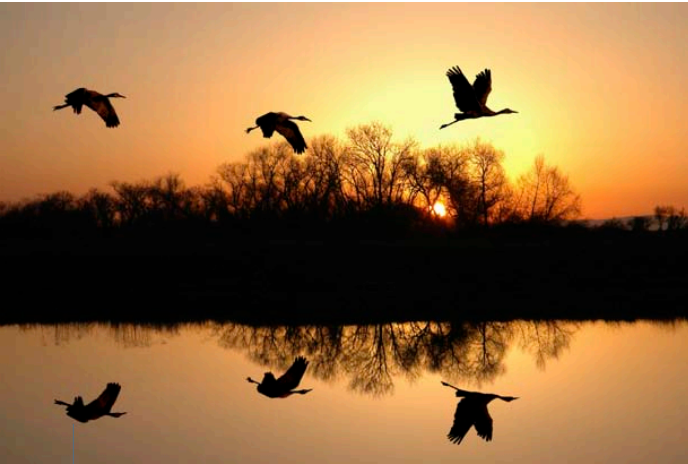
- The City of Vancouver (CoV) Green Cities Strategy focuses entirely on “people space” vs. the City of Surrey where parks are seen as a conservation issue (also for people but with conservation focus). In CoV people think of parks in terms of aesthetics—we need zoning for conservation-focused parks.
  - Metro Vancouver Regional Parks has a new systems plan, including acquisitions and management. Having the parks is not enough.
  - The North Vancouver Parks department is initiating a parks and open spaces plan. We want a more proactive plan, there is conflict between sports uses and conservation.
  - Mission has a mandate to promote biodiversity. It has done some land acquisition.
  - Delta has a Natural Areas Management Plan. They’re starting to develop invasive species management, they need to figure out where their biodiversity is, what it is, and then they will know what important biodiversity they have to lose.
  - There are parks, but there are lots of other “unused/wasted” space that is important and can be used.
  - Also, there are farms managed within parks. We can have the cultural landscape managed within parks. We could have 3 types of parks: active use, biodiversity areas, cultural landscapes.
- Example: 426 acre-parcel of local park—will lease part back to agricultural use and will eliminate public access to a few trails in the rest of the area.
- Gradation of zoning: parks for people all the way to conservation areas.
  - What should be done at the borders of parks? Germany has a three zone system—one zone for protected areas, one for agriculture, one for residential areas. The rest is uncontrolled. It’s different here because we have so many private landowners.
  - We need good buffer zones. How can we manage the land around the land that is already secured, and is likely a tiny patch?
  - The Ministry of Agriculture and Lands has fairly recent edge-planning guidelines.
  - The Semiahmoo Trail design guidelines specified what was allowed on land bordering trails, but design guidelines get weak over time.

Continued on next page...

## 6 Protected Areas Management continued

### Participant Comments about Tactics continued

- Lots of dike lots were privately-owned and are being dissolved for municipalities to take over. There is big pressure to make every dike a trail.
- We need adequate buffers. We also need to have a discussion with ALC regarding having buffers between dike trail and agricultural land. This will be difficult because it means loss of some agricultural land.
- There is a need to consider invasive species.
- In the removal of invasive species we need a plan for what will be done after the species are removed otherwise it's not really worth doing. We should form best practices in Metro Vancouver and have them in place so everyone can benefit.
- There are a lot of initiatives in place doing good work but not enough staff to coordinate efforts or get things rolling in a coordinated way.
- Enforcement of protected areas is key. In the Metro Vancouver area there are closures of protected areas because of species at risk, but are those rules enforced?
- With corridors, if you're missing one segment it is rendered far less valuable. We need to focus on key missing segments; also need to protect/secure linking pieces that are at risk of being lost.
- Regarding the riparian areas regulation, no one is supposed to use this area but of course people will/do. Is it acceptable to keep people out?
- There are ways of protecting land that is not owned by the public. It should be secured as heritage buildings are, that is, whoever owns it knows what they have to protect.
- There are all these tools that have been used for various types of control over land. We need a list with strengths and weaknesses for how various tools have been used and what for, e.g. for buffer zones. We've got a number of useful tools where it has not been widely communicated how they can be used.
- The Green Bylaws Toolkit is very useful for developing areas.
- Managing lands adjacent to protected areas is also an issue. In protected areas, you can at least zone them to exclude a set of activities, etc.



Silhouette of migrating sandhill cranes. Loss and degradation of riverine and wetland ecosystems is likely the greatest threat to these birds in British Columbia. Burns Bog and Pitt Meadows provide important breeding and staging habitat for the greater sandhill crane, *Grus canadensis tabida*, one of the three North America migratory subspecies of sandhill crane.

The Pacific sea nettle, *Chrysaora fuscescens*, is a jellyfish commonly found on the west coast of North America. Jellyfish play an important role in marine food webs. They feed mostly on zooplankton, comb jellies and other jellyfish and are preyed upon by sea turtles, sunfish, spadefish, crab and other large crustaceans. Degradation of the world's oceans however, due to pollution, overfishing, and global warming, favour jellyfish blooms, causing fish reduction and a chain of associated problems.





# 7 Private Land Stewardship

Develop and utilize incentives and education to encourage better uptake of existing programs and voluntary stewardship on private lands.

## Participant Comments on Strategy

- We need to better manage agricultural lands, with more efforts and better tools. We need to keep land in the ALR and need more recognition of the ecological services agricultural land provides.



An aggressive and powerful hunter, the great horned owl, *Bubo virginianus* is the most widely distributed bird of prey in the western hemisphere. It hunts an amazing variety of animals, from insects to big birds as well as mammals as large as raccoons. Young great horned owl (picture) are almost fully feathered and capable of short flights at around eight weeks of age.

## Participant Comments on Tactics

- The Delta Farmland and Wildlife Trust (DFWT) is a great model.
- Voluntary stewardship is carried out by Delta farmers through DFWT, setting aside cover crops which provide habitat for huge numbers of waterfowl.
- Stewardship groups that are active in working with farmers are Langley Environmental Partners Society (LEPS), and Delta Farmland and Wildlife Trust (DFWT).
- Can we use incentives to create habitat from farmland?
- LEPS is addressing land stewardship with citizen science programs that monitor wildlife, and is mapping data to determine wildlife corridors. If the community realizes these animals are there, then preserving habitat becomes a priority.
- Another example is West Vancouver forest land owned by British Pacific Properties; the movement within community and current council is that the natural environment should be the main focus now and 25 years from now.
- Agricultural Set-asides give incentives. We need to provide incentives to developers to keep set-asides and the like on lands. We need to let developers know about options for tax breaks, density trading, zoning.
- The South Coast Conservation Program has funding for land stewardship on Sumas Mountain and Chilliwack Watershed using Habitat Stewardship Program funding. Regarding incentives on agricultural land they work with the Agricultural Land Commission to hold covenants but this is considered a restriction on farming. We need effective protection on agricultural land, but can't fetter agricultural use.
- A regulation in Bedwell Bay was used to place a moratorium on dock production, this forced people to make shared docks (instead of every foreshore landowner creating their own private dock). This limits development on the foreshore and reduces shading of the intertidal zones.
- We are participating in a Community Supported Agriculture project to maintain a community farming in Little Campbell. There is lots of good farmland, but absentee landlords result in fallow fields; there is a lack of green spaces in new developments.
- Surrey is mapping for connectivity on private land, but it is a challenge to implement corridors on private land. They are showing leadership in environmental design and are being recognized for new neighbourhood sustainable development.
- Stewardship can be assisted by landowners involved with covenants and eco gifts.

Continued on next page...

## 7 Private Land Stewardship continued



Western skunk cabbage, *Lysichiton americanus*, is also called yellow skunk cabbage or swamp lantern. Its skunky scent might not please humans, but it is wildly attractive to its fly pollinators. This plant is found in swamps and wet forests, along streams and other wet areas. Presence of the yellow skunk cabbage announces the first signs of spring in the BC coastal forest but can also indicate a wetland or wetland buffer on someone's property.

### Participant Comments on Tactics continued

- ALR encourages good models, e.g., community gardens.
- We need resources for Land Trusts to provide land owner contact and incentive options.
- We should review Section 215 and 219 of the Land Title Act to see how restrictive covenants can be monitored properly.
- There are many areas under Restrictive Covenants but we don't see a lot of compliance. There is a question of whether a municipality or DFO will sign and which will monitor RCs.
- Creative use of mail outs in tax assessments would promote stewardship of land.
- Trees on agricultural land are taxed higher, so this needs to be changed.
- Interested in things to promote in local gardens such as NatureScape.
- Note the differences between municipalities, e.g., Delta supports migratory bird habitat, while the ALR is abused elsewhere.
- It's difficult to designate corridors on private land.
- Incentives are important. They need to be different than those that work for agricultural land.
- Linking hotspots to landowners to make sure they are aware of the value of their own areas and the wisdom of good utilization.
- We need to target agricultural land that is riparian. These areas can't be farmed due to regulations, so they should be removed from the ALR. We can put a covenant on it, but can't remove it from the ALR, although it can be full of invasive plants and not managed properly. The Fisheries Act would keep riparian areas from being farmed.
- There is a disincentive to leave trees; they get taxed at higher rate (woodlot) unless they say they will farm in the future. Why can't there be a favourable tax rate to keep riparian areas unfarmed?

Killdeer, *Charadrius vociferus*, are common year-round residents of BC's south coast. Hunted in large number for food and sport during the 19th century, the Migratory Birds Convention Act of 1917 ensured permanent protection and recovery of these birds. This shorebird, often described as a "farm-country" bird is useful to farmers for their large appetite for weed seeds and insect larva, pests harmful to agriculture.



## 8 Map, Monitor, Research

Ensure sufficient biophysical information from a regional to a site specific scale to make scientifically defensible, measurable, ecosystem-based land use decisions.

### Participant Comments on Strategy

- One of the challenges at the local level is that measurement tools are not there. We need consistent indicators that can be used at different levels.
- There wasn't a consensus about whether we have data to support the development of the indicators.
- The key points are that there must be mapping at appropriate scales, mixing small and large scale data, data needs to be accessible to all, and tool kits are needed to help people implement their tasks.



Humpback whales, *Megaptera novaeangliae*, were abundant along the coast of British Columbia until the beginning of the 20th century. Hunted to near extinction, these whales are making a slow comeback. Nevertheless, ongoing impacts on their habitat and food supply could affect this trend. Humpbacks have distinctive markings on the underside of their tails, used by researchers to identify and monitor individuals. They are the only whales that actually sing.

### Participant Comments on Tactics

- There should be a call to update the Fraser Lowlands Wetlands Inventory.
- If your concern is biodiversity, you need to know how, why and when it is changing. Following changes requires regular monitoring, and monitoring requires the choice of indicators to measure.
- Indicators are key points in adaptive management. We need biodiversity indicators that work at a local scale.
- We have decent ground cover and vegetation and land use mapping already—now we are looking for the changes.
- There needs to be much better coordination of mapping.
- How can you effectively monitor? Look at indicators, e.g., forest cover, and examine areas of high biodiversity overlaid with protected land, and act on the gaps, e.g., unprotected land of high biodiversity value.
- We should have mapping at different scales: site-specific and region wide and something in between that is more tangible. A challenge is that site-specific mapping was not done under strict guidelines. We need a checklist or standards to say what exactly is required.
- Municipalities need to agree on a standardized checklist for environmental assessment plans (Abbotsford has one). That will allow for the data to be similar between all municipalities.
- For consistent standards, what indicators do we need? We tried to figure that out (with the best available science); there still are a lot of problems with indicators.
- We need to incorporate biodiversity indicators into Official Community Plans. Metro Vancouver reports on air quality and fecal coliform counts. They should also do forest cover, loss of ALR, loss of habitat, etc.
- Environmentally Sensitive Areas mapping is critical for planning—should be included in OCP review.
- There is a need to move into adaptive management. We should look at how specific actions are actually affecting things.
- A web based mapping phase is coming. Hectares BC is a summary of everything we know for every hectare in BC.
- The Community Mapping Network could be approached to map occurrence data from local government consultant's reports.
- Best management practices are a good way to bring biodiversity to the attention of developers. Mapping, monitoring and research are essential to properly forming those best management practices.
- Generally the best way is to go for groundcover first, then use research to get the connection between ground cover and diversity.
- Good maps, but no tools—we need better tools to get results out of the maps.

Continued on next page...



## 8 Map, Monitor, Research continued



Photo graph: Michelle Gaudry

In order to produce a solid baseline that can be used for future monitoring, the Burrard Inlet Environmental Action Program undertook a Habitat Inventory for Burrard Inlet in 2009. This has involved using aerial photo interpretation to digitize major features of the inlet including: observed shoreline, low water mark, roads, structures and buildings, streams and stream mouths, intertidal substrate and intertidal vegetation.

### Participant Comments on Tactics continued

- The next step for biodiversity conservation should be a tool kit used by NGOs and municipalities for land based terrestrial ecosystems.
- A gap for environmental planning is inventory information. This can be used to determine where impacts are, where are the setbacks and other protective measures that should be put in place. Data exists for streams, but not for things like wildlife trees, nests — we need inventory information to be the first step in planning.
- Lots of consultants' reports result from environmental assessments from development applications, but there is no way of accessing this information. There should be a list of information on highlights from consultants' reports (e.g. species occurrence data) to be accessed elsewhere (i.e. in a database) so this info isn't lost.
- 'Biodiversity' is obfuscation—we're talking about habitat. We need to inventory habitat; we know what species use which habitats and these habitats are being destroyed, e.g., port expansion on Roberts Bank.
- How can we build a database with a variety of biodiversity information to be used for planning? The City of Burnaby uses BCIT Fish and Wildlife Program students to do fisheries assessments.
- Propose creating report cards—rank municipalities on biodiversity effort and protection/loss, raise the profile of biodiversity in local governments through competition.
- Research—municipalities don't do it just for the sake of it. It can be done when partnered with an institution. It needs to be practical.
- Collaboration with post-secondary institutions is needed for monitoring and mapping, e.g., Community Mapping Network, Douglas College Institute for Urban Ecology.

The 190 km of shoreline and 11,300 hectares of water and seabed of Burrard Inlet are biologically diverse and productive ecosystems that provide habitat for many species of fish and shellfish. It also supports around 30 species of corals, jellyfish and sea anemones like the green surf anemone, or giant green anemone, *Anthopleura xanthogrammica*. These beautiful animals feed on detached mussels, crabs, sea urchins and small fishes.



## 9 Education/Communication

Promote better understanding of biodiversity, our region's natural assets, and habitats. Rekindle residents' connection to nature and encourage communities to become actively involved in conserving and restoring biodiversity.

### Participant Comments on Strategy

- Almost everyone needs to know more about almost every aspect of biodiversity and the steps towards its conservation.



A common inhabitant of Burrard Inlet, the purple ochre star, *Pisaster ochraceus*, is a keystone species in the rocky marine intertidal communities of the Pacific Northwest. As efficient predators of the common mussel, *Mytilus californicus*, they control mussel's abundance allowing microinvertebrates to flourish and as a result maintain much of the local diversity in the intertidal community.

### Participant Comments on Tactics

#### 1) Comments about most commonly identified needs:

- Professionals need to have more access to basic information via websites, collections of information, 'tool kits', short term training and workshops.
- Professionals in different institutions (governments, NGOs) need better communication with each other so they can find out about regional patterns of biodiversity and its changes, regional protection or land acquisition plans, priorities, monitoring systems, patterns of protecting regional corridors, etc.
- Non-environmental professionals in organizations need to be informed of biodiversity and related environmental issues.
- Homeowners need to know more about what they can do on their land to protect biodiversity or avoid harming it.
- All citizens need to know what they can do to communicate with politicians and governments about their priorities, and how to find out more information. People need to reconnect to the natural environment. People need to be able to rate the sustainability of their own actions.
- Schools need access to information and customized programs. There need to be programs to teach the teachers.
- Children need to be connected to nature and the outdoors, need to learn to care about nature; parents need to learn to be less fearful of children being outside.
- Politicians and political decision makers need information about what biodiversity is, why it is important, what its ecosystem service benefits are and how decisions in their area influence biodiversity.
- Stewardship groups need to know what can be done and how to do it.
- Private landowners need to be convinced to become good stewards and support biodiversity, to know the different tools and options available to them, and to know about the challenges of at risk species.
- People of different cultures have different reactions to the environment and biodiversity information needs to be made available in ways that respect and reach different groups.
- Developers need to know potential benefits of biodiversity in general and financial and technical options available to them.
- Corporations need to know about biodiversity issues in general and also how their large staff events can help biodiversity.

Continued on next page...

## 9 Education/Communication continued

### Participant Comments on Tactics continued

#### 2) Comments about Action Steps

- Use maps. Maps are incredibly powerful for communication.
- There should be better use of existing materials: pool them for easier access, workshops and tailgate training and peer training.
- There are no funds for delivery of good existing engagement programs.
- We need complementary education programs to provide consistent messages and not confuse the community. There is a problem if several programs offer the same thing.
- We should have a coordinated approach so the same work is not done by different people.
- Perhaps you could play up charismatic fauna. But, beware of the backlash. People are afraid of cougars and bears. People want habitat protected, but do not want wildlife close.
- Social marketing is important as an education tool. Peer pressure is also a wonderful tool.
- Use and share success stories.
- Food security can be promoted.
- There has been a Bear Aware program for 5 years and there have been huge improvements. People are starting to understand that a fed bear is a dead bear and they don't leave out garbage.
- We could have put a leaflet in the Water Utility bill or other public distributions.
- Climate change is front and foremost—and municipalities can be part of the solutions.
- Offer environmental education under the framework of "sustainability".
- The strategy is to be ready for a crisis, be prepared to bring out speeches and ideas when senior staff/politicians are ripe for new ideas.
- The 4th point under Strategic Direction 8 Communication/Education Opportunities for Action: "raise the profile of terrestrial systems" seems unclear. Perhaps it is based on lots of attention to salmonids? Suggest rewording to be more about non-salmonids or another more holistic statement.
- We must be more sophisticated and use contemporary ideas of educational psychology which are often ignored in the design of educational programs.



Rufous hummingbirds, *Selasphorus rufus*, play an important role in western North American plant reproduction. During their migration from Alaska to Mexico, rufous hummingbirds forage upon nectar-bearing flowers and hence pollinate plants along their entire journey. Unfortunately, this species of hummingbird is declining throughout its range due to the loss of nectar resources caused by herbicides, pesticides, climate change, habitat fragmentation and outbreak of invasive species.



# 10 Implementation

Confirm agencies or partnerships to undertake or champion the following priority actions.

## Participant Comments on Strategy

- We need a coordinating, responsible agency for biodiversity management and accountability.
- Communication, education and coordination are the three main points. A coordinating body could be created that would structure and report on those segments.



The 500 kilometers of shoreline in the Fraser River estuary are mostly comprised of a highly productive mud. Production in this habitat results from a complex food chain of microscopic organisms and plants such as eelgrass. In summer, many birds feed directly on the plants and seeds of the mudflats and adjacent marshes, while wintering birds rely on the benthic organisms of the mudflats.

## Participant Comments on Tactics

- South Coast Conservation Program (SCCP) could become an umbrella to bring together these initiatives. How would/could SCC become this group?
- SCCP has lots of players involved in biodiversity but not the local government people.
- Regional context statements have more teeth than the Biodiversity Strategy alone Municipality context statements need to have regard for the Biodiversity strategy e.g. by mean of a Memorandum of Understanding.
- The Conservation Authority in Ontario is a suitable model.
- Accountability needs to be examined and better coordination between different levels of government should be in place.

## Comments relevant to this topic made during the post-breakout open-microphone session:

- Land Conservancy BC could be the umbrella group to bring people together to enact some of these ideas brought forward today. There is certainly a need to establish what land should be secured and what funds are out there that could be directed to conservation and acquisition.
- Greater Vancouver Invasive Plant Council is an example of an organization set up strictly to do communications and outreach on a similar topic.

Wolf eels, *Anarrhichthys ocellatus*, are interesting fish. They have robust heads and a long tubular muscular body that can stretch up to 8 feet. They spend most of their lives hiding in caves and crevices, sticking just their heads out and waiting for a meal to pass by. Marine scientists are currently calling for a halt in the use of rockhopper trawls. This method, employed to fish rough, rocky sea floors causes the destruction of the rocky reefs in which the wolf eel resides.





# Exploring Next Steps for Action

Spawning sockeye, *Oncorhynchus nerka*, one of the seven species of salmonids found in the Pacific Northwest. Salmon are of great importance for BC fisheries and tourism and have been vital to coastal First Nations for millenia. Overall decline of Pacific salmon populations in the region have resulted in much concern as they face multiple threats, among them habitat alteration and loss, loss of genetic variability, climate change, diseases, parasites, contaminants, and invasive species.





# Exploring Next Steps for Action

The *Strategic Directions* provides a list of opportunities and actions to achieve biodiversity conservation in the Metro Vancouver Region. Almost nine years of background studies, research and consultation were drawn upon in the compilation. The next step for biodiversity conservation in the Metro Vancouver Region is to determine which actions should be undertaken by each organizational body. Organizations will then have the responsibility of developing suitable programs and reporting measures for implementation. In this context, the Forum discussed ideas and suggestions specifically regarding local implementation, and, to some extent, prioritization of actions.

There is a significant body of knowledge and literature on biodiversity conservation programs and projects. It is beyond the scope of this summary to review this large technical literature, but two sources are described below. The first is a set of background documents used by the Biodiversity Conservation Strategy Partnership as the basis for the *Strategic Directions* is listed below. The second is a summary of practical steps towards implementing biodiversity projects and avoiding errors others have made. They might help would-be designers to successfully implement biodiversity conservation initiatives in the Metro Vancouver region.



Named BC's provincial bird in 1987, much needs to be learned about habitat preferences and the complex social systems of the Steller's jay, *Cyanocitta stelleri*. A member of the crow family, Steller's jays are intelligent and opportunistic birds. This species is an important player in the dispersal of Garry oak acorns, which it collects and caches for the winter or saves for eating at a later time.



## Documents from the Biodiversity Conservation Strategy Partnership

The Biodiversity Conservation Strategy Partnership's many years of work addressed many issues related to biodiversity conservation in the Lower Mainland, and did so in substantial detail. Some of the documents they produced are listed in the Strategic Direction report's list of References, but not all of them, and the content and significance of their reports is not discussed in the report.

Readers interested in the Strategic Directions report are advised that there is much helpful material in the other Partnership documents, that they address a number of the desired steps identified by the Opportunities for Action (and which some participants in the breakout sessions also identified), and the material is specifically appropriate to local circumstances in Metro Vancouver.

Key documents are downloadable as PDF files from within the menu item 'Research and Reports' on the right side of the Ecological Health page of the Metro Vancouver website at [www.metrovancouver.org/planning/development/biodiversity](http://www.metrovancouver.org/planning/development/biodiversity). You need to click on the + symbol at the left of the title 'Research and Reports' to find them. The project's six major maps are available there too.

Using the titles as listed by the website, the documents and their major contents are:

**Biodiversity Action Profiles** This 58 page report describes 51 local conservation initiatives that "reflect successful processes or outcomes transferable to other jurisdictions and organizations in the region."

**Framework for Action** This is a 70 page report, similar in approach and major details to the Strategic Directions document, which reviews biodiversity challenges, suggests five strategies for implementing biodiversity conservation, multiple action steps for implementing them and offers guidelines for monitoring to integrate the steps.

**Assessment of Regional Biodiversity and Development of a Spatial Framework for Biodiversity Conservation in the Greater Vancouver Region** This is a 135 page report that describes data about biodiversity in the Metro Vancouver area and describes the logical design of the framework for the major maps of biodiversity information that were prepared for the Partnership.

**A Planner's Guide to the Biodiversity Conservation Strategy for the Greater Vancouver Region** This 23 page report "is intended for municipal planners. It provides an overview of the land cover and biodiversity maps developed for the Biodiversity Conservation Strategy... and describes how the mapping data might be used at the local level to plan for the protection, enhancement, and restoration of biodiversity."

**Still Creek Watershed Biodiversity Conservation Case Study** This is a 126 page report of a case study in which the regional scale mapping data from the BCS project is used, with data from an Integrated Stormwater Management Plan, to guide planning at the watershed scale for Still Creek in Burnaby and Vancouver. It identifies watershed-specific management guidelines and uses maps of indicator species habitat at the watershed scale.

**Conserving Biodiversity in Greater Vancouver: Indicator Species and Habitat Quality** This is a large set of information about indicator species for each major ecosystem class and their habitat requirements, compiled into multiple appendices.

Continued on next page...



Common loons, *Gavia immer*, are a regular sight on BC's coastal waters during the winter. In the breeding season they are found in marshes, sloughs and lakes with clear water. These diving birds require near-pristine conditions and are sensitive to human disturbance. Despite being among the most ancient bird species, they have disappeared from many lakes in eastern North America due to the effects of acid rain and pollution. The Common loon is imprinted on the Canadian one-dollar coin.

## Documents from the Biodiversity Conservation Strategy Partnership continued

**Phase One: Review of Key Biodiversity Conservation Issues, Roles and Responsibilities** This 124-page document reports the results of interviews which identify biodiversity initiatives undertaken by different governments and other stakeholders in the Greater Vancouver Region. It describes the priorities, issues and challenges of those different groups and the biodiversity data they possess. It reviews legislation and regulations, and policy and planning tools of different levels of government, and includes multiple tables showing interrelationships of organizations, legislation and planning tools with particular biodiversity actions or ecosystem components. It describes gaps in the administrative framework for biodiversity conservation and recommends some future steps for administrative organization and adaptive management.

**Phase Two: Socio-Economic Values of Biodiversity in the Greater Vancouver Region** This 47-page report describes several local cases (integrated stormwater management, forest conservation areas and municipal tree protection) and conservation initiatives (riparian greenways, the Greenfields Program and Maplewood Flats Conservation Area). It shows financial and qualitative estimates of the socio-economic benefits provided by biodiversity and how biodiversity information is used in decision-making.

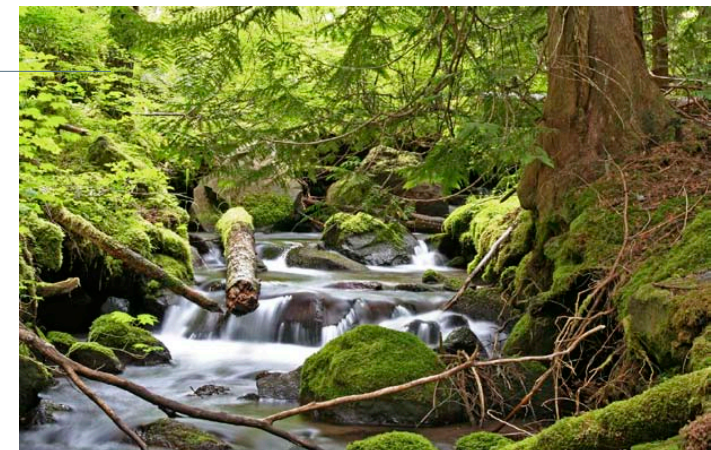
**Phase Three: Priorities, Opportunities and Strategic Directions** This is an 82-page report which briefly summarizes the phase one and phase two reports and identifies 24 potential regional biodiversity priorities. The document ranks the 24 potential activities into four categories of decreasing priority, based upon how well biodiversity is addressed by each and how relatively easy they are to implement. It provides tables interrelating existing biodiversity initiatives and biodiversity priorities. The report also discusses which organizations might be able to address different priorities and where particular gaps are. It provides 20 specific recommendations.

**A Review of Regional Biodiversity Conservation Strategies** This 24-page report describes basic information about nine regional biodiversity conservation strategies from Australia, Canada, England and the United States. Six of the strategies are from major urban regions and three are mixed-use landscape plans. It also lists example initiatives that have resulted from the strategies.

Great rivers are born in small streams and wetlands. The health and productivity of rivers depend upon how intact this system is. Small streams and wetlands provide invaluable ecosystem services such as natural flood control, groundwater recharge, and nutrients recycle. They also provide shelter, food, spawning sites and nursery areas, and travel corridors through the landscape. Many species depend on small streams and wetlands at some point in their life history including salmon.

### Also available from the Metro Vancouver webpage.

There are multiple links to valuable biodiversity and environmental planning information from the Metro Vancouver webpage listed above. However, specifically relevant to the Strategic Directions report and the Forum are those under the top link in the menu on the right: "Biodiversity BC". From the "Downloads" menu on the left side of the Biodiversity BC homepage one can obtain their major report ***Taking Nature's Pulse***, which was mentioned by several speakers at the Forum. In the same list, the report ***Ecological Principles, Concepts and Applications to Conservation*** provides a sound summary of basic ideas of ecology and conservation biology and how they provide the foundation for the kinds of actions discussed throughout the Strategic Directions document. The entire ***BC Biodiversity Atlas*** is also available from the same page.





# Getting Biodiversity Projects to Work



---

Tens of thousands of dunlins are easily spotted in huge swirling flocks in Boundary Bay and Roberts Bank between October and March. Despite their worldwide abundance, several subspecies of dunlin appeared to have declined in recent decades including the local subspecies *Calidris alpina pacifica*, possibly due to the loss of habitat in the nonbreeding range.



# Getting Biodiversity Projects to Work



*Getting Biodiversity Projects to Work* is the appealing title of a book by McShane and Wells (2004) devoted to practical suggestions for biodiversity conservation. It is written largely in the context of developing nations, in which large aid agencies fund both biodiversity protection and economic development, and also monitor the results of their work. Biodiversity projects were usually intended for specific protected areas and associated development projects were in nearby populated areas. They were called Integrated Conservation and Development Projects or ICDPs. The perceived failure of many such projects in the eyes of the funding agencies led to the review in this book.

*Drosera rotundifolia*, or common sundew is a tiny carnivorous plant found in sphagnum bogs in North America, Europe, and northern Asia. Sundew leaves are covered with sticky hairs that trap and digest insects, a means to compensate for the low availability of nutrients in the soil. The Haida people used this plant as a good luck charm for fishing, and other Northwest Coast groups used the leaves to remove corns and warts. This plant is native to Burns Bog.

In Canada our interests in biodiversity are often organized so that NGOs and conservation agencies are more separate from the corporations and government agencies concerned with development than is the case for international aid agencies. Nonetheless the two priorities are intertwined for society as a whole and for many governments. Although there is an extensive literature discussing biodiversity management, the comprehensive observations and suggestions presented by McShane and Wells are worth considering, as they address similar concerns to those faced by the Biodiversity Conservation Strategy Partnership and the Strategic Directions document.

It oversimplifies the information in a 400-page book, but three different main messages can be found there and six specific recommendations for the future are offered.

## Main Messages

**1 The goals and objectives of both development and conservation are frequently vaguely stated, poorly articulated, and are frequently in contradiction.**

Even when only considering biodiversity protection, various ecosystem and species protection goals, and their indicators, may not be compatible. Vagueness, contradictions and incompatibilities sometimes reflect poor planning but sometimes also reflect differences between stakeholders which have been avoided with loose language. These circumstances undermine success and need to be addressed even if it is complex and politically difficult to do so.

**2 Many sound steps and worthwhile tools have been developed that apply to making biodiversity projects work within the social and economic context of local communities.** When such approaches were implemented they were found to have a variety of explicit and hidden assumptions that were not always correct and to be much more difficult to use effectively than was expected.

**3 The goal of protecting biodiversity in an economically relevant context should not be abandoned nor should radically new approaches be attempted.** The basic set of goals and methods identified to date is still appropriate. However, they must be used with much more care and with more resources, the many identified shortcomings must be overcome, and potential conflicts between biodiversity protection and economic development goals must be dealt with.

---

The Pacific tree frog is the only tree frog found in the southern part of BC. The species is described under two names—*Hyla regilla* or *Pseudacris regilla*—the frog's genus is still under debate. The Pacific tree frog is fairly abundant but there is some evidence of population decline. As a keystone species—many other wild creatures prey on the frog for survival—this represents a cause for concern.



## Recommendations for “Building on What Works”

### 1 Identify Root Causes and Appropriate Policy at Different Scales

Local threats to biodiversity are often a result of policies and actions taken some geographical distance away, a situation often noticed and thought to be outside the mandate of local projects. Nonetheless, biodiversity protection efforts need to identify such challenges and ensure (perhaps through a wider array of partnerships than has been traditional) “that site-based actions are directly supported by policy-level actions both nationally and internationally.”

### 2 Use Adaptive Management

Their definition: “Adaptive management incorporates research into conservation action. Specifically, it is the integration of design, management and monitoring to systematically test assumptions in order to adapt and learn.” Many projects claiming to use adaptive management do not take the time and resources to work thorough all the steps and to repeat the cycle of activity and feedback. Because it forces consideration of goals and objectives, gathers essential monitoring data, and uses data to improve the project, adopting adaptive management addresses many biodiversity project weaknesses at once.

### 3 Identify Targets and Address Trade-Offs

Participants must specifically identify their conservation targets. “It is only when biodiversity is defined by specifying its site-specific components (genetic, population/species, and community/ecosystem) and attributes (structure, function, and composition) that it becomes a useful tool.” Likewise development targets must be specific. When both sets of features are clearly identified, stakeholders can then use organized and transparent means to negotiate trade-offs among their different goals. If potential trade-offs are ignored or missed at the beginning, disputes will arise later.

### 4 Address Challenges of Different Scales

Biodiversity challenges range from the very local to regional and international and the different issues at different scales must be addressed and resolved. “There is an emerging interest in adopting ‘large scale conservation approaches’ to integrating conservation and development...if properly chosen, a landscape approach can balance the ecological, social, and economic land uses necessary for sustainable development... The challenge for practitioners is not to decide the best scale at which to operate, but rather the combinations of actions required at different scales.”

---

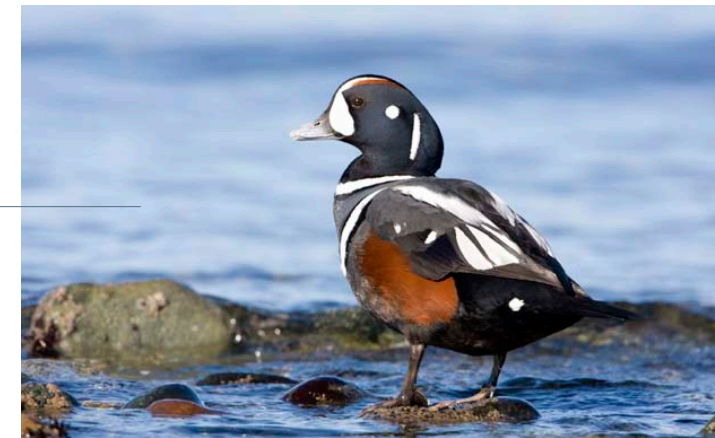
Harlequin ducks, *Histrionicus histrionicus*, are small diving sea ducks and swift swimmers in turbulent river water. Males display striking colors (picture) while females are mostly brown. Breeding occurs primarily along fast-flowing shallow rivers and streams that are rich in invertebrate life. Harlequin ducks are particularly vulnerable to oil spills because they are linked closely to the intertidal habitat.

### 5 Consider More Appropriate Incentives for Conservation

The assumption that more revenues from development would reduce environmentally threatening behaviours was not supported by experience. Therefore more diverse means to support conservation need to be investigated, perhaps including direct cash payments for biodiversity protection.

### 6 Engage more Effectively with Stakeholders

Although collaboration with stakeholders was a fundamental mechanism often recommended and usually employed in biodiversity projects, such efforts were often superficial, misguided, incomplete or did not engaged the right mix of stakeholders. More effort and better design needs to be given to stakeholder participation in biodiversity conservation.





# Discussion

Several main points can be seen in reviewing the Strategic Directions document and the comments made in the Forum.

Most conspicuous is the participants' agreement with the Strategic Directions document, both in its general outline and in the details it presented. Discussions were about how to make the various strategies and actions take place. The agreement with the document was occasionally explicit but was mostly implicit. It showed in the coherence of comments made with the logic and the directions offered by the report. Only one comment was made about the phrasing of one of the Opportunities for Action.

Although the Forum participants were all interested in biodiversity, their comments showed they were not necessarily knowledgeable about the Biodiversity Conservation Strategy Partnership nor about the Strategic Directions document. A number of participants commented that they had come to the Forum to learn. Although all participants had received the Strategic Directions document in advance of the Forum, not everyone had fully absorbed the materials or recognized the comprehensiveness of the Strategic Directions and their associated actions. Thus both

they and other readers of the document could benefit from additional details and support concerning actions for biodiversity conservation. Some such information is provided in the *Exploring the Next Steps for Action* section above, which makes information from the Partnership more conspicuously available. The *Education/Communications* Strategic Direction had more comments than any other Strategic Direction, reflecting many felt needs. Obtaining relevant information is a major issue related to taking action concerning biodiversity.

A strong feature of the comments of the Forum participants is the extent to which they repeated ideas which are among the Strategic Directions document. Their comments confirm the breadth and comprehensiveness of the Partnership's work. The participants were particularly concerned with the themes of cooperation, collaboration, information sharing and education, in addition to the technical information and managerial steps associated with biodiversity conservation. Continuing the processes identified by the Strategic Directions and the Opportunities for Action appears relevant to all participants.

---

Cattail, *Typha latifolia*, also known as bulrush or reedmace, is a primitive plant dating back to the dinosaur era. It is one of B.C.'s most prominent wetland species and is easily spotted in the Fraser River estuary. Cattail plays an essential ecological role, providing habitat for fish, waterfowl, waders, red-winged blackbirds and small mammals such as muskrats.



# References

Biodiversity BC website: [www.biodiversitybc.org](http://www.biodiversitybc.org)

McShane, T. & Wells, M. (Eds.). 2004. *Getting Biodiversity Projects to Work: Towards more Effective Conservation and Development*. New York: Columbia University Press.

Metro Vancouver Ecological Health webpage with Strategic Directions background documents:  
[www.metrovancouver.org/planning/development/biodiversity](http://www.metrovancouver.org/planning/development/biodiversity)

*Strategic Directions for Biodiversity Protection in the Metro Vancouver Region*. Report available at:  
[www.metrovancouver.org/about/publications/Publications/StrategicDirectionsBiodiversityConservation.pdf](http://www.metrovancouver.org/about/publications/Publications/StrategicDirectionsBiodiversityConservation.pdf)

---

The red-winged blackbird, *Agelaius phoeniceus*, is an abundant year-round resident in the inner south coast of BC. They inhabit marshes and agricultural fields, though during the breeding season they prefer wetlands with standing aquatic vegetation, especially cattails, where they usually nest. Males can be very aggressive while defending their territory, but after the breeding season they become just another member of a large flock.



# Forum Participants

Abs, Susan ..... Eclipse Environmental Consulting Ltd  
 Adair, Marian ..... Nature Trust & Biodiversity BC  
 Astley, Caroline ..... Hemmera  
 Baker, Tamsin ..... The Land Conservancy  
 Bennett, Ken ..... District of North Vancouver  
 Bettles, Tanya ..... City of Abbotsford  
 Birch, Margaret ..... City of Coquitlam  
 Blue, Bonnie ..... Metro Vancouver  
 Bonin, Derek ..... Metro Vancouver  
 Brock, Ken ..... Environment Canada  
 Brown, Glenn ..... Arbutus Institute  
 Carlson, Glen ..... A Rocha Canada  
 Ciprywnyk, Paul ..... Burnaby Environment Committee  
 Cook, David  
 Craig, Patrick ..... Port Metro Vancouver  
 Croy, Owen ..... City of Surrey  
 Cuthbert, Margaret ..... Friends of Semiahmoo Bay Society  
 Dal Santo, Sarah ..... District of North Vancouver  
 Davidson, Peter ..... Bird Studies Canada  
 De Andrade, Annemarie ..... BIEAP-FREMP  
 De Jong-Wetman, Marja ..... Capilano University  
 Dorr, Caroline ..... BIEAP-FREMP  
 Douglas, Lesley ..... City of Richmond  
 Dunkley, Dave ..... Metro Vancouver  
 Duynstee, Theresa ..... Metro Vancouver  
 Edwards, Heather ..... City of Burnaby  
 Embley, Erin ..... Metro Vancouver  
 Englund, Lanny ..... City of Coquitlam  
 Evely, Alison ..... Metro Vancouver  
 Fast, Sue Ellen ..... Bowen Island Greenways Advisory Committee  
 Fox, Lisa ..... Fraser Valley Conservancy  
 Fryer, Sarah ..... UBC Design Centre for Sustainability  
 Gaudry, Michelle ..... BIEAP-FREMP  
 Geesing, Dieter  
 Godwin, Stephen ..... City of Surrey  
 Golds, Elaine ..... Burke Mountain Naturalists  
 Greenwood, Kim ..... LEPS  
 Hohndorf, Hagen ..... City of Coquitlam  
 Jack, Deb ..... Surrey Environmental Partners  
 Jarvis, Janis ..... Metro Vancouver  
 Joseph, Chani ..... University of British Columbia  
 Kirkby, Jan ..... Environment Canada  
 Kischnick, Markus ..... City of Surrey

Knell, Graham ..... District of North Vancouver  
 Kuhn, Tyler ..... Simon Fraser University  
 Lilley, Patrick ..... Raincoast Applied Ecology  
 Louie, Wai-Sue ..... City of Coquitlam  
 Lukianchuk, Jennifer ..... City of New Westminster  
 MacFarlane, John ..... Metro Vancouver  
 Mathewson, Anna ..... City of Surrey  
 McGregor, Robert ..... Douglas College — Institute of Urban Ecology  
 McLean, Robyn ..... City of Burnaby  
 McPhee, Mike ..... Douglas College — Institute of Urban Ecology  
 Meier, Jennifer ..... District of Mission  
 Merkens, Markus ..... Metro Vancouver  
 Moore, Kathleen ..... Environment Canada  
 Nassichuk, Erika ..... no contact provided  
 Otto, Dr. Sarah ..... Biodiversity Research Centre  
 Page, Nick ..... Raincoast Applied Ecology  
 Paris, Greg ..... Metro Vancouver  
 Pellett, Tony ..... Provincial Agricultural Land Commission  
 Pinkus, Susan ..... Ecojustice Canada  
 Phillpot, Darha ..... University of British Columbia  
 Popple, Helen ..... City of Port Coquitlam  
 Riddell, Erin ..... Corporation of Delta  
 Riley, David ..... Friends of Semiahmoo Bay Society  
 Robertson, Jennifer ..... Terasen Gas  
 Rogers, Susan ..... District of North Vancouver  
 Sangret, Marcy ..... Corporation of Delta  
 Scott, Michelle ..... Fraser Valley Conservancy  
 Senichenko, Geoff ..... Western Canada Wilderness Committee  
 Shead, Rod ..... City of Abbotsford  
 Sloat, Mark ..... Township of Langley  
 Tait, Mary ..... Boundary Bay Conservation Committee  
 Tanaka, Andrea ..... Environment Canada  
 Velland, Dr. Mark ..... Biodiversity Research Centre  
 Vennesland, Ross ..... Parks Canada  
 Watson, Marnie ..... City of Burnaby  
 Wercester, Robyn ..... Stanley Park Ecology Society  
 Williams, Judy ..... Fraser River Coalition  
 Wilson, Jennifer ..... Environment Canada  
 Wornell, Heather ..... Metro Vancouver  
 Yong, Melinda ..... City of Burnaby  
 Zevit, Pamela ..... Adamah Consultants  
 Zimmerman, Kathleen ..... Ministry of Agriculture



The Pacific dogwood, *Cornus nuttallii*, is the provincial flower of British Columbia. Some First Nations groups have used the wood for bows and arrows, implement handles and clothing hooks while others would boil the bark to make a dark-brown dye. Dogwood flowers provide nectar to pollinating insects and the bright red berries are eaten by various birds such as grosbeaks and waxwings. Bears also eat the fruit and foliage, whereas deer are known to eat the twigs.





**Burrard Inlet  
Environmental  
Action  
Program**



**Fraser River  
Estuary  
Management  
Program**

501 — 5945 Kathleen Avenue  
Burnaby, BC V5H 4J7

604.775.5756

[www.bieapfrempp.org](http://www.bieapfrempp.org)

that blue 

Graphic design by Lisa Marshall  
and Matthew Kowalyk