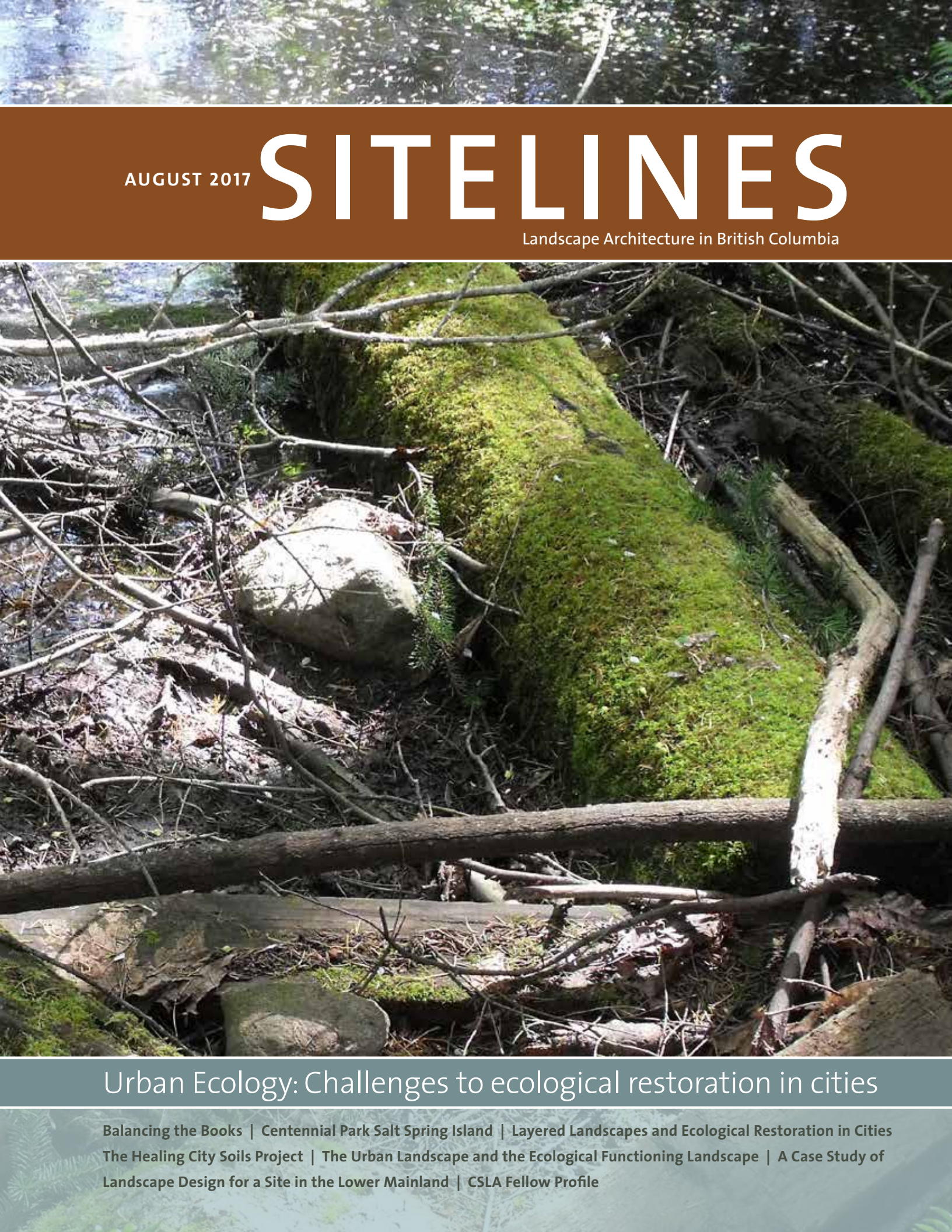


A photograph of a forest floor. In the foreground, there is a large, moss-covered log or rock, surrounded by dry branches and twigs. The moss is a vibrant green, contrasting with the brown and grey of the dead wood. In the background, more branches and foliage are visible, creating a dense, natural setting. The lighting suggests a sunny day, with shadows cast across the forest floor.

AUGUST 2017

SITELINES

Landscape Architecture in British Columbia

Urban Ecology: Challenges to ecological restoration in cities

Balancing the Books | Centennial Park Salt Spring Island | Layered Landscapes and Ecological Restoration in Cities
The Healing City Soils Project | The Urban Landscape and the Ecological Functioning Landscape | A Case Study of
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The purpose of Sitelines is to provide an open forum for the exchange of ideas and information pertaining to the profession of landscape architecture. Individual opinions expressed are those of the writers and not necessarily of those of the BCSLA.

Urban Ecology:

CHALLENGES TO ECOLOGICAL RESTORATION IN CITIES

Val Schaefer, PhD, RPBio,
Academic Administrator, Restoration Programs,
University of Victoria

The typical toolbox used to restore natural ecosystems in wilderness areas includes using native species and identifying historical ecosystems as restoration targets. However, restoration in cities is more complex and uncertain. Cities are radically altered environments that include large areas of impervious surfaces, invasive species and a municipal infrastructure that parallels natural systems for moving water, waste and energy. Social and political context are just as important as natural processes. Acknowledging the complexity and uncertainty of urban landscapes creates a more authentic approach to their restoration. The layered landscape concept as described by Marion Hourdequin and David Havlick in *Restoring Layered Landscapes: History, ecology and culture* (2016) is the latest perspective in describing this complexity.

In this issue of Sitelines, Val Schaefer and Laura Biggs describe ecological restoration educational programs at the University of Victoria that encourage a sophisticated appreciation of the landscape with such concepts as novel ecosystems, “listening” to appreciate the inputs that define a site and working with uncertainty in restoration planning. Bev Windjack explains how to create living systems that integrate social and cultural values with ecological values using the development of the masterplan for Salt Spring Island’s waterfront Centennial Park as an example. Val Schaefer describes the evolution of the University of Victoria campus as an example of a layered landscape. Marika Smith describes a successful program of the Victoria Compost Education Centre that helps people address the problem of contaminated soil in cities. Kristina Zalite provides an analysis of urban ecological design to demonstrate how a traditional landscape design can easily be transformed into one that also restores habitat. Finally, DG Blair of the Stewardship Centre for BC describes a training program offered in partnership with the University of Victoria for homeowners and professionals to take a more holistic approach to restoring coastal shoreline properties. **SL**

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Cover Image: Canoe Pond, Hobbs Creek.
Photo: Schaefer

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Balancing the Books

Val Schaefer, PhD, RPBio,
Restoration Programs,
University of Victoria
and
Laura Biggs, MEd, CACE,
formerly Restoration Programs,
University of Victoria

ECOLOGICAL RESTORATION PROGRAMS at the University of Victoria take People and Nature into Account

The Environmental Studies Program in the Faculty of Social Sciences at the University of Victoria developed in 1978, was one of the first environmental studies degree programs in Canada. Its first full-time faculty member was a philosopher, indicating that an interdisciplinary, holistic approach was woven into the very fabric of the curriculum. Today, half of the faculty are from the sciences. The program has a balance between scientific and social knowledge at its core — a balance between nature and people.

The 1990s was a formative decade for ecological restoration in British Columbia. The environment was a priority with the BC NDP government of the time, leading to the genesis of provincial programs in Forest Renewal, Fisheries Renewal and Watershed Restoration. Universities, colleges and institutes in BC initially met the need for further training and education in these areas primarily by modifying their existing programs in Biology, Geography and Geology. In 1991, the BC Environmental Programs Articulation Committee was formed by the BC Ministry for Advanced Education, Training and Technology, to better organize and coordinate the proliferation of new changes and programs.

When the Society for Ecological Restoration was formed in 1987, ecological restoration emerged with a curriculum of its own. The field of urban ecology was growing as a specialization in the 1980s as well. Ecological restoration began to accumulate its own body of knowledge integrating philosophy, indigenous values and sociology. Eventually, new certificates, diplomas and degrees in ecological restoration were developed. A science-based curriculum still figures heavily in many of the programs for resource sectors such as forestry, mining and fisheries. However, ecological restoration in cities



Figure 1. Students proudly display the results of a project that involved removing English Ivy from Beacon Hill Park, Victoria. Photo: Schaefer

differs from natural areas. It requires a sensitivity to and understanding of urban planning, social values, consensus building, conflict resolution and dealing with the added uncertainty of nature's interaction with people in an urban setting.

The Restoration of Natural Systems (RNS) Program was started by the School of Environmental Studies at the University of Victoria in 1996. A few years later, the passage of the Species at Risk Act in 2004 shone a spotlight on Garry Oak Ecosystems that suffered heavy impacts from urban development in the Greater Victoria in particular, bringing an even stronger focus on the relationship between urban ecology and ecological restoration. Although our restoration programs are offered nationally and

internationally, a significant amount of inspiration for our curriculum comes from our experiences in Greater Victoria, Metro Vancouver and the rest of BC. About one-third of our students are local, another one-third from the rest of BC and the remainder are from other provinces or international.

Ecological Restoration Programs at the University of Victoria

The University of Victoria offers two programs in ecological restoration benefitting from a partnership that brings together content expertise from the School of Environmental Studies (SES) and the sensitivity to adult learner needs and online teaching ►



Left: Figure 2. Excavating a new stream channel for Grosbeak Creek in Saanich, BC. Photo: Strong
Right: Figure 3. Re-vegetating drilling platforms in Panama. Photo: Rokosh

expertise from the Division of Continuing Studies (DCS). Our curriculum teaches viable approaches that consider ecological, social, and political dimensions as well as the problem solving skills to identify and resolve conflicts and to build consensus in the decision-making process. We also do some customized contract training that leads to a Certificate of Completion on request.

The Restoration of Natural Systems (RNS) Program was established in 1996 to provide both theoretical knowledge and practical skills for those working to restore damaged ecosystems. The RNS Program provides a holistic approach to restoration projects, recognizing the importance of both the social and biophysical dimensions of restoration work.

Offered as both a twelve-course credit diploma and a shorter eight-course non-credit certificate option, the RNS Program is designed to meet the needs of professionals and to suit the busy schedules of people who work or study full-time. Courses are offered in two formats: on-campus five-day intensive or online. The RNS program is at the third and fourth year undergraduate level and often attracts students who are concurrently working on an undergraduate degree. However, many of our students are working professionals who already have degrees and are looking for professional development and specialization in the field of ecological restoration. Some RNS Diploma graduates have gone on to do an MA or MSc in Environmental Studies in ecological restoration.

All Diploma and Certificate students are required to do an applied project — the ER390

course — to give them real life experience about what is involved in conducting a project. In the process they gain applied knowledge about community consultations, permits, community plans, working on teams, organizing volunteers and other relevant aspects. Depending on the interests and opportunities available to the student, the project may be as simple as an invasive species removal (Figure 1) or as complex as excavating stream channels (Figure 2). Students who have connections with international nongovernmental organizations and companies have done projects in places such as Nicaragua, Kenya, Sierra Leone, Philippines and Panama. Figure 3 shows a drilling site in Panama.

The Ecological Restoration (ER) Program is a non-credit Professional Specialization Certificate (PSC) taught at a post-baccalaureate level for people working in ecological restoration and related fields seeking advanced training. Students in this program already have a degree and some experience in an environmental field. The ER Program develops critical thinking skills and asks challenging questions that require students to deal with the uncertainty that is present with more complex problems in ecological restoration. Students take four of the five courses offered, all of which are full-term and online. Upon completion of the PSC, students are able to conduct detailed site assessments and restoration projects that pay special attention to the unique conditions and challenges presented by altered environments. The program focuses on: 1) re-establishing natural processes, 2) balancing social and economic constraints with ecosystem

functioning, 3) exploring new approaches to creating functional landscapes, 4) challenging our current understanding of ecological restoration as it is applied to a wide range of conditions and 5) adapting to climate change.

Our graduates include a number of landscape architects, including Bev Windjack who has contributed an article here. Bev completed the PSC in Ecological Restoration, while Kristina Zalite and Marika Smith, other contributors, both completed the RNS Diploma.

Contract training has involved short one- to two-day programs in ecological restoration with First Nations such as the Songhees and Homolko, and with community groups such as the Stewardship Centre for BC with whom we offer the Green Shores Program, described later in the Greening Shorelines article.

Our Partnerships

The RNS Program engages with government, businesses and the community through 1) student projects, 2) program level projects and 3) community outreach activities. The more than 100 community partners we have worked with over the years have enriched learning opportunities for our students and have kept the program current and relevant. In return, our partners have benefited from the time and expertise of our talented students in conducting important work to understand, restore and live in harmony with the natural environment. Our community partners have come from all levels of government, First Nations, educational institutions, international organizations, nongovernmental organizations, consulting firms and other private partners. Our community outreach includes activities such as lecture series, restoration walks and the Garry Oak Ecosystem Recovery Team (GOERT) Research Colloquium.

RNS Student Technical Series Papers

Each student in the RNS Program is required to conduct a major, semester-long project — the ER390 described earlier. The work of these students to plan and implement a real restoration project highlights the extensive reach and positive impact of this program. Their reports represent a substantial resource for the practitioner community and most are available online at www.urbanecology.ca. ^{SL}

Centennial Park

SALT SPRING ISLAND

Bev Windjack, BCSLA, AALA, CSLA, ASLA, LEED AP
BD+C, ER PSC, LADR Landscape Architects

Though the term was not explicitly used, the recently completed masterplan for Salt Spring Island's waterfront Centennial Park is an excellent example of layered landscape design. The plan responds to the site's significant cultural history that became known, embraced and celebrated through the design process. The park falls within the traditional territory of several Coast Salish Nations including WSANEC, Penelakut, Stz'uminus, Halalt and Cowichan Tribes, and is close to known and suspected culturally important First Nations sites, including seven burial sites. The site was a thriving clamming area and an important economic resource until infilled in 1967 (Figure 4), without any First Nations dialogue, to create Centennial Park in honour of Canada's first hundred years of Confederation (Figure 5). The original park concept was for a community park with playground, bowling green, shuffleboard, cenotaph, parking and artistic landscaping (the 'European' park model). The park evolved over time and slowly fell into disrepair. In 2014, it included a hodge-podge of trees (some 'memorial'), playground, washroom structure, band shelter with semi-circle viewing berm, cenotaph, several monuments/plaques, and an expanded linear plaza designed to support the popular Saturday Market. Aside from the cenotaph, none of the elements were part of the original design.

Park Opening

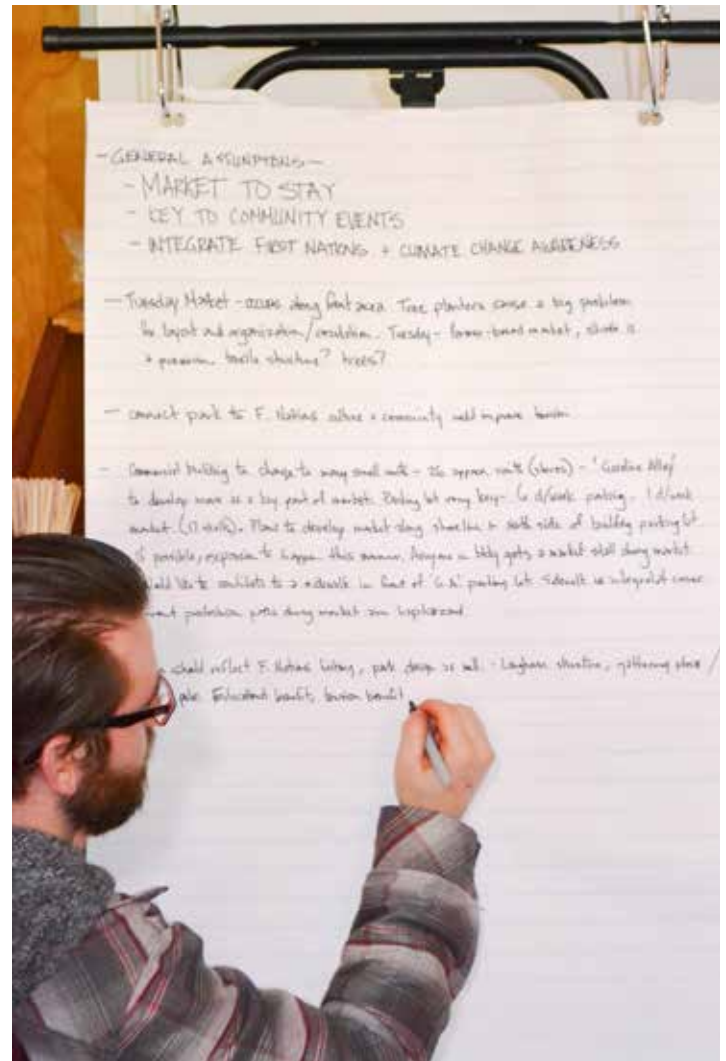
In 2016, concerned about the park's state of disrepair and underutilization, especially in light of Canada's upcoming 150th birthday, the Capital Regional District (CRD) contracted LADR Landscape Architects to prepare a ▶



Figure 4: Historic Context: Original Extent of Shiya'hwt Village Photo: Salt Spring Island Archives



Figure 5. Opening Ceremony. (Photo from *Gulf Islands Driftwood*, July 13, 1967)



Images on right:
Figure 6. Public
engagement in the
planning process.
Photos: Windjack

20-year Park Master Plan based on site analysis, historical review and public consultation. The public consultation process (personal conversations, survey, roundtable and charette, presentations to the public and the Parks and Recreation Commission (PARC) Board), included representatives from nine First Nations bands and tribes, local residents of all ages, and representatives of local businesses, the Thursday and Saturday markets, the Chamber of Commerce, the CRD and the Harbour Authority. For many participants the pre-1967 history of the site and region was unknown, and when explained by Selilye Claxton, Elder from Tsawout First Nation, at the first public event, an extremely significant and unrecognized 'layer' was exposed (Figure 6). From that point on, master plan participants strongly and unanimously articulated the need to recognize First Nations in the new design and several participants even felt the park name should be changed.

Other more widely recognized layers addressed in the masterplanning process included the site's post-1967 role as the central town square/park and venue for festivals and

civic events, its current role as a community park and venue for the economically important Thursday and Saturday markets (25% of the park is allotted to the market during market hours), its manufactured ecology (filled clam bay; poor drainage), and ongoing climatic and social conditions, water restrictions (level 4 in 2016) and rising sea levels, increasing concerns around safety and desired pedestrian connectivity to Ganges, adjacent parks and trail systems.

Understanding and prioritizing the layers was an aspect of the masterplan that participants were keenly interested in; it underpins all six designs produced by participants in the design charette, and ultimately provides the foundation upon which the final approved design sits. **SL**



Layered Landscapes *and* Ecological Restoration in Cities

Val Schaefer, PhD, RPBio, Academic Administrator, Restoration Programs, University of Victoria

Ecological restoration depends critically on context. In addition to the ecological perspective, ecological restoration in cities needs to consider social and political layers that have impact on a site as well. Context for the site design is critical for a project to endure. There is no single prescription for restoration. To really work, a design requires that we understand the layers of a site's past history, current influences — both on- and off-site and future impacts. This process of understanding a site is sometimes called “listening” and encompasses ecological, social and political factors. The layered landscape approach acknowledges this complexity of a site and integrates ecological values with social and cultural values to create a more authentic approach to landscape architecture.

As an example, we can look at the University of Victoria campus. A case study of the layered landscape concept that was given in *Restoring Layered Landscapes: History, ecology and culture*, edited by Marion Hourdequin and David Havlick (2016), deals with the transformation of a former US Army Jefferson Proving Ground munitions testing area into the Big Oaks National Wildlife Refuge in Indiana. Historically, the University of Victoria was originally located at the current location of the Lansdowne Campus of Camosun College. The University of Victoria campus of today, like the Big Oaks National Wildlife Refuge, also has a military connection. It was established on 140 acres of land owned by the federal government and the Hudson's Bay Company in 1963. The land was used as a military training base during WWII and still had 40 useful barracks on the site. Unlike the Jefferson Proving Ground, however, there was no issue with heavy metals in the soil from munitions. On the other hand, similar to the Jefferson example that had a wildlife layer that involved Burrowing Owls, the university campus had a breeding colony of Skylarks (*Alauda arvensis*) which,



Figure 7. Page wire fencing around Canoe Pond to keep off-leash dogs from running into the water and eroding the banks. Dogs are supposed to be leashed in Mystic Vale; however, this restriction is often ignored by dog owners. Photo: Schaefer

although an introduced species, was well loved and the subject of student protests when their habitat was slated to be destroyed to construct the David Strong Building. Habitat loss is also part of Crime Prevention Through Environmental Design (CPTED), where some habitat in the Cunningham Woods may soon be lost due to safety concerns identified in the 2017 update of the University's Campus Plan.

The military connection in the University's past is still evident in the name “Canoe Pond” for a small isolated wetland in a large ravine on campus known as Mystic Vale (cover image). As you cannot canoe to or from the pond on Hobbs Creek, the name is a puzzle to many people; however, it was used as a training area for the army to teach canoeing. Mystic Vale and Hobbs Creek today are excellent examples of layered landscapes and competing uses. Hobbs Creek receives the drainage from a large storm drain in Oak Bay that subjects the creek to

the typical floods and droughts common in urban creeks with large areas of impervious surface in their watersheds. The erosion of the banks and the siltation of the creek are so serious that the university developed a Hobbs Creek – Mystic Vale five-year restoration plan, last updated in 2009. However, the issues the plan identifies can only be addressed with limited success in the in-stream environment because restoration efforts such as wattles to stabilize the banks and weirs in the creek to trap sediment are overwhelmed by floodwaters. The University has created rain gardens in the watershed on campus to help with the problem of stream flow and has installed page wire fencing around Canoe Pond to keep uncontrolled off-leash dogs from running into the water contributing to siltation (Figure 7), but the solution requires a much broader watershed scale approach that needs to include urban planning measures within the City of Oak Bay. **SL**

THE Healing CITY SOILS PROJECT:

Marika Smith, MSc, RNS Dipl, Victoria Compost Education Centre Program

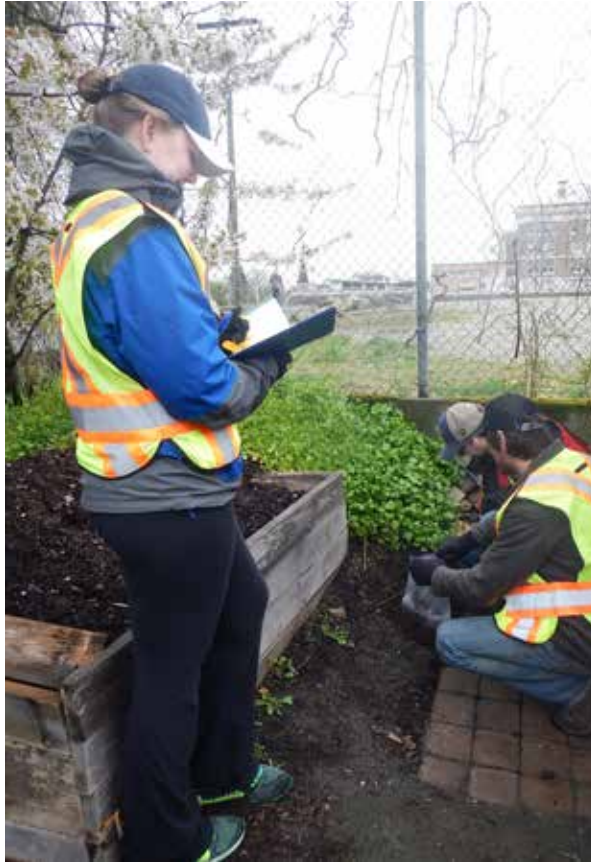


Figure 8. Collecting soil samples from a garden.
Photo: Smith



Figure 9. Testing soil samples in a Chemistry lab at Royal Roads University. Photo: Royal Roads University

With growing concerns over food security, many people are turning to their backyards and boulevards to grow food for their families. In order to establish a thriving and productive urban food garden, there is a need to *grow your soil* before you *grow your food*. Urban soils can contain heavy metals and other contaminants as a result of our industrial past and present. Soil quality can be a concern for urban food gardens as contaminants may be absorbed into vegetables and fruits. Soil testing for contaminants is often expensive and interpreting the results can be confusing or disheartening, creating another potential barrier to urban food production.

The Healing City Soils Project was developed as a partnership between the Victoria Compost Education Centre (CEC) and Royal Roads University's BSc in Environmental Science program to address soil health concerns in urban areas within the Capital Regional District (CRD). The project offers free soil testing for heavy metals and provides follow up workshops for participants that detail best practices for gardening in areas containing elevated levels of contaminants (Figure 8). In 2016, soil tests for heavy metals such as lead, arsenic and cadmium were completed at 140 garden sites in Greater Victoria to support people already growing, or interested in growing, food in backyards, front yards, boulevards and community



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gardens (Figure 9). Soil test results were made available online through the Victoria Soil Quality map, an interactive resource that can be found on the CEC's website. This open-access map provides community members with a picture of soil health throughout the city and is paired with factsheets and workshops that assist people to empower themselves with the knowledge and skills to grow food safely and remediate the soil with compost, plants and mushrooms. While no sites in the 2016 study were found to contain levels of heavy metals that would indicate any significant health risks for residents, testing the soil remains an important first step before creating an edible garden in the city.

Though current land use in the City of Victoria is largely residential, city archives revealed a history of neighbourhood garbage burning and burying, historic use of lead paint on house exteriors, as well as multiple appliance and automotive repair businesses. Soil tested at the Compost Education Centre's site near downtown Victoria showed elevated levels of lead, arsenic, nickel, chromium, zinc and copper. The test results are not surprising considering that the CEC is downslope from what was once the autobody shop for Victoria High School for more than 60 years, pre-dating the 1990 Gasoline Regulation that phased out leaded gasoline in Canada.

Further soil testing and analysis will be

completed in 2017 within the neighbouring communities of Saanich and Oak Bay to expand the data on the Victoria Soil Quality map, with a goal to eventually map the entire CRD, highlighting any areas where heavy metals may need to be addressed before growing food. Connecting urban agriculture, composting, food literacy, ecological restoration and bioremediation, this project brings together local government and post-secondary institutions, food security organizations and people who are interested in growing food and conserving the soil beneath their feet. For more information and to view the interactive soil quality map and fact sheets, visit <https://www.compost.bc.ca/healing-city-soil>. **SL**

THE URBAN LANDSCAPE *and the* ECOLOGICAL FUNCTIONING LANDSCAPE

– Can they be One and the Same?

A Case Study of Landscape Design for a Site in the Lower Mainland, BC

Kristina Zalite, BCSLA Intern, RNS Cert, Jonathan Losee Ltd.

In the fall of 2015, I was finishing my ecological restoration studies at the University of Victoria while working at a landscape architecture office in Vancouver, BC. I was studying to learn about data collection as part of sophisticated Terrestrial Ecosystem Mapping procedures, and I was curious to see where there were overlaps, or perhaps even gaps, between landscape architecture and ecological restoration design.



Figure 10. Consultant Team On Site – Site superintendent Dwayne Ostheidt, Landscape Architect Jonathan Losee Ltd., Blue Pine Contractor Mike Lalonde, and Geotechnical Engineer Paul Davies at the bottom of the protected slope. Photo: Zalite

Using a work project in Burnaby, BC, I applied restoration design approaches to a case study of a south-facing exposed slope bordered on one side by a new commercial-industrial building and on three sides by disturbed landscape, including a Hydro Right-Of-Way (ROW) (Figure 10). On the other side of the ROW is Burnaby Mountain with remnants of a Coastal Western Hemlock forest. The soil is glacial till fill and plants included Himalayan blackberry, Scotch broom, and grasses with patches of black cottonwood, red alder and sword fern, all indicating an early pioneer forest community.

With my new-found studies I was able to think as an ecologist, and I included six restoration design approaches to the case study: 1) I identified targets for ecosystem recovery, which included slope stabilization and a vegetated buffer between the urban landscape and the neighbouring forest; 2) I designated a reference ecosystem of a very early stage successional forest ecosystem, in other words, an urban grassland; 3) I designated how the case study site would integrate into the adjacent Coastal Western Hemlock forest ecosystem by showing signs of soil and vegetation development, declining erosion and evidence of feedback loops; 4) I employed restoration strategies such as



Figure 11. Swale at top of slope, waiting to be planted. Photo: Zalite

creating a vegetated buffer to ‘seal the edge’, designing buttresses of vegetation at the toe of slope, planting iconic habitat species, planting fast-growing species, adding coarse woody debris where possible, mulching to cover 100% of exposed soil on shallow slopes and seeding with trees that are treated with root fungi inoculants; 5) I identified site performance standards for erosion control, soil development, plant development, and signs of feedback loops — evidence of feedback loops included the presence of organic materials, plant persistence, plant growth, plant patches and high infiltration; and 6) I included strategies in my maintenance plan for long-term protection, ongoing maintenance, and monitoring. The case study incorporated these six novel design steps into a traditional landscape design process (Table 1).

The implementation of this case study is ongoing and has been modified a few times as real-world challenges have presented themselves. The maintenance watering prescription was reduced from five years to two years to conform to Canada Green Building Council’s LEED® requirements and the vegetated buffer was reduced in size due to budget restrictions. The toe of slope planting was eliminated in lieu of increasing the slope from 2:1 to 1:1. To reduce erosion, however, a swale at the top of the slope (Figure 11) was installed and the design calls for planting of Sandbar, Coyote, and Dwarf Arctic willow that offer stabilization and habitat value.

I conclude that landscape architecture can be augmented to incorporate ecological restoration principles with the addition of two design approaches: 1) identifying restoration targets; and 2) introducing more restoration practices. [SL](#)

DESIGN STEPS	
Design Challenge	Client Interview
Site Inventory & Analysis	Prepare base plan Site inventory Site analysis Program requirements Opportunity and Constraints
Identify Targets	Degree of Recovery Anticipated Reference Ecosystem Integration into the landscape
Design	Functional Diagramming Conceptual Plan Master Plan, Site Plan
Construction Documents	Layout, grading, planting, details, etc. Specifications and/or maintenance plan
Restoration Practices	Methods and Strategies for Restoration Performance Standards Long term protection, maintenance, and monitoring
Implementation	Building Post-construction evaluation Maintenance As-built drawing set

Table 1: Novel Design Process for Urban Ecological Design

Greening Shorelines, Enhancing Resilience in a Changing Climate:

Development and Delivery of Green Shores™ Education and Training

DG Blair, MSc, Stewardship Centre for BC



Figure 12. Green Shores Technical Advisory Committee member, Harriet Rueggeberg, discussing shoreline options with participants at the Lantzville Level 1 workshop. Photo by DG Blair.

Communities with shorelines protected by seawalls, gabions, groynes and diking systems and waterfront owners with properties exposed to high energy wave and current regimes are at a decision-making crossroad. To date, much of public discourse in BC has largely focused on building bigger, better walls. While sea walls and dikes provide protection in the short term, they're very expensive and can contribute

to increased shoreline erosion. They also result in loss of habitat and community shoreline amenities, can increase wave height by up to 10 times and can negatively affect nearby properties. All of these costs and impacts will be greatly magnified with one metre of sea level rise. As an alternative to hard armouring solutions, decision-makers can consider Green Shores™. This program provides practical strategies for

marine and lakefront shoreline design, management and the promotion of healthy shoreline environments — yet many people are unfamiliar the program.

To address this gap, the Stewardship Centre for BC (SCBC) and the University of Victoria have collaborated by providing training aimed to increase the uptake and use of Green Shores in British Columbia. The training is taken either as a one- or two-day workshop and brings needed information, tools and other resources through the use of a regional training delivery model.

The one-day Level 1 workshop introduces participants to the Green Shores program, including its rationale, benefits and application. The content is of interest to elected officials, landowners, municipal staff, conservation organizations, real estate agents and others who are seeking an introduction to Green Shores (Figure 12). The Level 2 workshop is a two-day workshop that provides participants with in-depth knowledge about how the Green Shores credit and rating systems can be used in shoreline management projects. The content is of interest to professionals (biologists, engineers, planners, landscape architects) and contractors, local and regional government staff and others seeking to implement the Green Shores program for shoreline improvement, new design or development or other related shoreline projects.

CSLA Fellows

PROFILE OF

Randy Sharp

FCSLA, ASLA, LEED® A.P., G.R.P. MBCSLA (Ret.)

Since January 2016, a total of 178 people have taken the Green Shores training in six Level 1 and three Level 2 workshops. Workshop attendees include biologists, planners, engineers, local government staff, landscape architects, students, homeowners, real estate agents and First Nations staff.

Training of professionals and those that work with shoreline property owners or managers is a key strategy to increase uptake of Green Shores. Successes with Green Shores training include the unique partnership between the University of Victoria and the Stewardship Centre to offer Green Shores training. This approach lends academic rigour and credibility to the course and enables professionals to receive professional development credits.

Future steps include adapting the course blueprints for other target audiences such as homeowners, elected officials and real estate agents, development of an on-line course and “lunch and learn” presentations. The new workshops and presentations will be less time intensive (one hour to one-half day) and provide an overview of Green Shores rationale and application. Plans are also underway to work with project partners to promote training opportunities with additional partners, such as those outside of British Columbia, so that training can be offered across Canada and beyond. **SL**



Figure 13: Randy Sharp at Delbrook Community Recreation Centre by CEI architecture and Sharp & Diamond / Connect Landscape Architecture

A Career in **Urban Ecology, Water Management and Living Architecture**

Randy Sharp's 'first' professor in landscape architecture, Kenny Helphand (University of Oregon), taught that “water is the greatest resource, and, water is the greatest liability.” He also

told Randy to “GET OUT” and experience the great outdoors. Randy’s career and contributions express his relentless pursuit of synergizing his passions – taught, learned and found.

My favourite place to celebrate Canada Day is on Granville Island. Kids roll down the grassy hill under the big Canada flag next to the outdoor amphitheatre. Swing dancers jive on the boardwalk to the music of Jen Hodge All-Stars. The sounds of accordions, clarinets, vibraphones, conga drums, trombones and beautiful voices flow from the waterfront amphitheatre, outdoor stages and performance venues as part of the Vancouver Jazz Festival. Surrounded by water on three sides, the 'Island' offers great panoramic views of the City and the harbour. Pedestrian ferry-boats, kayaks, yachts, paddleboards and even a pirate ship ply the busy waters of False Creek.

Granville Island was Randy's first assignment when he moved to Vancouver in 1977. He worked with Charles Torrence Landscape Architect and Hotson Bakker Architects for a year to document the industrial infrastructure of the Island and conceptually design the waterfront plazas and public open spaces. The 'urban park' featured the reuse of the industrial buildings for a public market, art studios and performance spaces linked by high canopy trees, interlocking pavers and multi-modal streets. The collaboration transformed the former polluted waterfront into an engaging civic and cultural precinct. Innovation included a continuous ground plane of unit paving with no curbs, no gutters and no sidewalks so that pedestrians, cyclists, cars, delivery vehicles and streetcars would co-exist.

In 1980, Randy 'woke up to the reality that not every job would be like Granville Island.' Don Vaughan, who had carried out the detailed design of Granville Island, mentored Randy to start a new practice in landscape architecture. Partnering with Larry Diamond, who brought his experience

in waterfront design and park planning, Randy shaped Sharp & Diamond Landscape Architecture as a leading Canadian firm with developed specialties in urban ecology, water management and living architecture.

Sharp & Diamond attracted major clients including Bentall Kennedy, Bosa Developments, Vancouver International Airport (YVR), the Vancouver Park Board, Metro Vancouver and Mountain Equipment Co-op (MEC). As a pioneer in living architecture, Randy planned the sites and rooftops for high performance buildings for pension funds and financial institutions such as the British Columbia Investment Management Corporation (Quad Real), Manulife and Sun Life. Many of these innovative projects are LEED® Gold certified. Sharp & Diamond's collaborations are recognized with multiple design awards from Cities Alive / GRHCs (4 times), SAB / Canadian Green Building Awards (3-times) and The Canadian Society of Landscape Architects, (National Award of Excellence for YVR) as well as The International Green Roof Association (Green

Roof Leadership Award) and World Architecture (Most Sustainable Building Award) for the VanDusen Botanical Garden Visitors Centre (with Cornelia Oberlander, FCSLA).

Randy's inquisitive nature garnished him a broad and deep encyclopedic knowledge of landscapes, plants, designs, ecology, music, food, sustainability, geography, place making, and outdoor play. Sharp & Diamond convinced several clients to collect and filter rainwater in cisterns for non-potable building uses as well as for irrigating landscapes, living walls and rooftops. Instead of piping polluted stormwater away as quickly as possible, water is celebrated in surface channels illuminated at night, rain gardens, and participatory art. At the North Vancouver MEC store, Randy surrounded the building and site with a functional 'moat.' The interconnected series of rain gardens capture and infiltrate 100% of site and roof water into the ground, and thus, a municipal storm connection was not required. The site exceeded all expectations for performance during recent intense and frequent storm events. The MEC Head Office, featuring



Figure 14: High canopy performance space at Simon and Helen Director Park, Portland, Oregon, by ZGF Cotter Architects and OLIN Landscape Architects

multiple green roofs and rain gardens, was recognized as the first Salmon Safe commercial site in Canada. YVR was certified the first Salmon Safe infrastructure project in Canada.

Randy's last design project at Sharp & Diamond Landscape Architecture, before retirement from the practice, was the Delbrook Community Recreation Centre, recently opened in North Vancouver (above). The terraced landscape was inspired by Persian pleasure gardens that feature water channels, rain gardens and a hands-on art installation entitled the 'Salmon Cycle.' The celebration of water with participatory art, rainwater harvesting, biological treatment in rain gardens, and the visible conveyance in surface channels hopefully will influence new forms of landscape and living architecture.

Combining the ordinary day-to-day with the sublime, Randy packs more into 18 hours than most people pack into a week. He teaches green roof planting and ecological design courses to the next generation of

designers and builders at the British Columbia Institute of Technology. Randy collaborates with Dr. Maureen Connelly, MAIBC, the Director of the BCIT Centre for Architectural Ecology. His knowledge helps drive performance metrics necessary for the advancement of green roofs, living walls, passive house systems and alternative energy sources, as part of a low carbon economy in Canada. Randy continues to share his experience and focuses on health advocacy, encouraging the City of Vancouver to build 'high performance' spaces (covered pavilions) as part of the public realm in prominent locations. 'Ownership' by a community centre, a café or a non-profit organization, can provide safe dry places for organized activities such as performance, dance, Tai Chi and fitness classes as well spontaneous uses. Touch dancing, such as Latin or swing, promotes physical, cognitive and social activity leading to a longer and higher quality of life. Through advocacy and example, Randy encourages all people to GET OUTSIDE and dance! **SL**



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