

Restoration of Haro Woods: Designing a Program for University Students  
to Carry Out On-Campus Restoration

ER390

Restoration of Natural Systems Program

University of Victoria

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## **Abstract**

The University of Victoria (UVic) has provided restoration education as part of the Environmental Studies (ES) curriculum for several years and student class projects have identified several restoration projects on the UVic campus. In 2011, the Restoration Volunteers Network (RVN) club was established to introduce university students to restoration activities in the community. The objective of this project is to organize a campus restoration work party led by the RVN students in an area on campus identified in previous student class projects. The specific goal of the work party is to remove the invasive species Daphne Laurel (*Daphne laureola*) from Haro Woods, a 1.1 hectare area of disturbed Coastal Douglas-fir forest owned by the University. The project team consisted of four students and the work party was successful in achieving 100% removal of Daphne Laurel in the prescribed area. Since its Campus Plan 2003, UVic has committed to the preservation and enhancement of natural areas on campus and treating the campus as a living laboratory. This project demonstrates that student led small project oriented teams organized according to “Guerrilla Marketing” principles can become a resource for the University to achieve its sustainability goals with respect to restoration of on campus natural areas.

## **Introduction**

The University of Victoria (UVic) campus comprises 162.7 hectares, and natural areas, planted areas and lawns comprise 116.6 hectares or 77% of the land base (Harrop-Archibald, pg. 3). In 2003, the University developed a Campus Plan and committed to the protection and restoration of identified natural areas and maintaining a system of natural and planned open spaces throughout the campus (UVic, 2003). One such natural area is Haro Woods, a 9.8 hectare forested area of which 1.1 hectares was purchased by the University of Victoria in 1996 as part of a legacy program of the 1994 Commonwealth Games (see Figure 1).

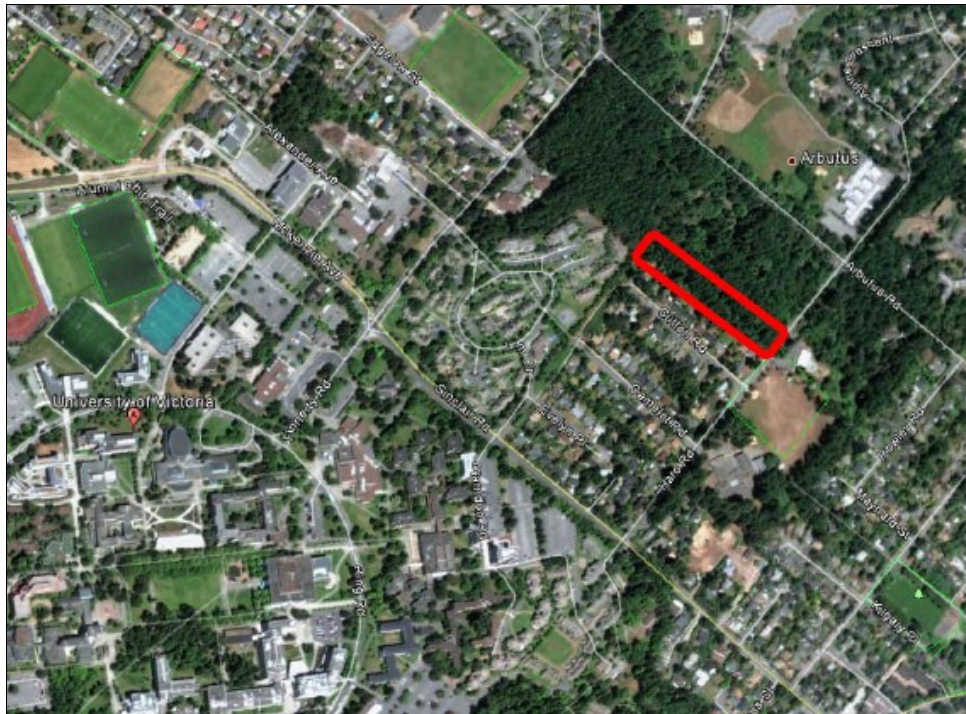


Figure 1: Photo showing the University of Victoria and location of Haro Woods (UVic owned portion shown in red) (GoogleEarth, 2012).

In the Campus Plan 2003, the University committed to the following Policy Direction:

“OS1: Mystic Vale and Haro Woods are protected from development in perpetuity. The University is committed to the preservation of the entire forested area associated with Mystic Vale and Haro Woods to ensure the long-term health of the area as habitat for local flora and fauna.” (UVic Campus Plan 2003, pg. 18)

However, no specific long-term management plan has been developed for Haro Woods and the site's ecological integrity has remained unchanged over time. The specific goal of this project is to engage students in the restoration of campus natural areas and create positive change to support the University's campus sustainability planning goals with respect to these areas.

As part of the curriculum for the Environmental Studies (ES) department at the University of Victoria (UVic), students are encouraged to identify projects on campus for environmental restoration.

Several projects have been carried out, including a campus wide natural features inventory, native species plantings at numerous sites, and stream restoration activities. In 2009, an undergraduate class project by Kowbel et al addressed the Haro Woods site, identifying the presence of invasive species as a major problem. Another issue identified was the lack of concrete actions to support ecological processes, essentially, restoration focused projects lacked a coordinated approach. Another undergraduate class project by Baum et al (2009) on Mystic Vale similarly identified a lack of resources for restoration work as a problem. To address this issue, this project focused on the engagement and development of the student population to organize, plan, publicize and carry out ongoing restoration work on campus.

### Goals and Objectives:

There are 3 main goals of this project:

- To carry out on campus restoration at sites identified by ES students in their class projects.
- To educate students about organizing restoration projects.
- To provide students with expertise and skills in planning and carrying out restoration activities.

### **Site History and Biophysical Description**

The University of Victoria is located on southern Vancouver Island in British Columbia, Canada, at 48 degrees, 28 minutes North, 123 degrees 19 minutes West. Haro Woods is a 9.8 hectare rectangular shaped parcel at the northeast corner of campus, 1.1 hectares of which is owned by UVic (See Figure 1). The owners of the other 8.7 hectares of Haro Woods are the Capital Regional District and the District of Saanich. Haro Woods is bounded by Finnerty Road to the west, Arbutus Road to the north and Hobbs Road to the east. The University of Victoria family housing complex (Lam Family Housing Complex), UVic's Day Care building and residential housing run along the south boundary. The surrounding neighbourhood includes Queen Alexandra's Foundation for Children property (former owner of Haro Woods), Frank Hobbs Elementary School, and residential single family housing.

The past ownership of Haro Woods has allowed it to remain in a somewhat natural state, however

uncertainty over its future use has clouded efforts to improve the ecological integrity of the site. According to Kowbel et al approximately fifty years ago the 9.8 hectare Haro Woods was transferred to the Municipality of Saanich and the Capital Regional District from the neighbouring Queen Alexandra Foundation for Children for future sewer infrastructure. In 1991 the District of Saanich council, after considering rezoning the site to low-cost housing development, designated Haro Woods as “public open space”. In 1995, the University of Victoria purchased a 1.1 hectare portion of Haro Woods as part of The Commonwealth Nature Legacy initiative of the 1994 Commonwealth Games (Dickson, 2012). The intention of the Commonwealth Nature Legacy is the preservation of “urban wilderness” areas for public uses and enjoyment. Other sites protected through this initiative include large undeveloped areas on the perimeter of the Capital Regional District such as the Juan de Fuca Marine Trail and Gowlland-Tod Range which were formed as Provincial Parks.

As previously mentioned, the UVic 2003 Campus Plan designated Haro Woods as a Natural and Landscaped Open Area and committed the University to “protecting and restoring” identified natural areas (UVic, 2003). However, no specific management plan has been developed for Haro Woods, and restoration of the area has been limited. The portion of Haro Woods owned by the Capital Regional District (CRD) and the District of Saanich has been the intense focus of the Cadboro Bay Resident's Association. Volunteers from the neighbourhood have undertaken removal of English Ivy (one of the main invasive species present) and lobbied the District of Saanich to designate Haro Woods as an official park.

In 2011, the CRD and Saanich agreed to a land swap, with Saanich acquiring the CRD's portion (approximately 4.327 hectares on Finnerty Road) in exchange for approximately 1.56 hectares adjacent to Arbutus Road and other surplus lands worth \$7.2 million (Saanich News, September 16, 2011). The CRD acquired portion includes below ground sanitary sewer infrastructure, including trunks, mains and a metering station. The site is currently under review as part of the regional sewer infrastructure plan as a site for secondary treatment holding tanks. Meanwhile, the lands acquired in the land swap by Saanich remain as “public open space” without a specific park management plan.

In biophysical terms, Haro Woods is in the Coastal Douglas-fir (CDF) mm Moist Maritime Coastal Douglas-fir Subzone (Green, R. and Klinka, K., pg. 46). The topography is generally level,

slightly sloping from south to north. The climate of southern Vancouver Island is generally mild with warm dry summers and mild wet winters, with approximately 70 cm of precipitation annually (Harrop-Archibald, pg. 3). “Forests on zonal sites are dominated by Douglas-fir (*Pseudotsuga menziesii*), as well as Grand-fir (*Abies grandis*) and Western Redcedar (*Thuja plicata*). The understorey is dominated by salal (*Gaultheria shallon*), dull Oregon-grape (*Mahonia nervosa*), ocean-spray (*Holodiscus discolor*), and Oregon beaked moss (*Kindbergia oregana*)” (Green, pg. 46). According to the UVic Natural Features Study (Harrop-Archibald, 2007), “the vegetation [of Haro Woods] consists primarily of Douglas-fir with some Grand fir in the overstorey, and Big leaf Maple (*Acer macrophyllum*) and Arbutus (*Arbutus menziesii*) in the understorey. The shrub and herbaceous layer are dominated by ocean-spray, snowberry (*Symphoricarpos albus*), Himalayan blackberry (*Rubus discolor*) and English ivy (*Hedera helix*).” (Harrop-Archibald, pg. 9). Observations of dominant species collected in a representative 10 metre by 10 metre plot were consistent with the CDFmm subzone site series 04 (FdBg – Oregon Grape) (see Ground Inspection Form in Appendix). A soil pit indicated a Soil Moisture Regime of Fresh to Very Moist (4) and a Soil Nutrient Regime of Rich (D) confirming the site series classification.

Also of note is the presence of rare Garry Oak (*Quercus garryana*) trees in Haro Woods. “These ecosystems occupy only a small portion of the Coastal Douglas-fir zone, which itself comprises only 0.3 percent of the land area of the province” (Province of BC, 1993). Garry Oak ecosystems contain a diverse range of rare or threatened plant species, and are habitat to a variety of invertebrate, small mammal and bird species. Due to its rarity, several conservation efforts have been made to preserve remaining Garry Oak ecosystems. The Garry Oak Ecosystem Recovery Team, a local conservation group, categorized and identified “Douglas-fir Plant Communities” as one of six Garry Oak Restoration Ecosystem Units. “The plant communities where restoration of Garry Oak associated species would be successful include Douglas-fir/Dull Oregon-grape (CDFmm/01), but only on gentle slopes and steeper warm aspects, not cool aspects; Douglas-fir/Arbutus (CDFmm/02); and Douglas-fir/Alaska Oniongrass (CDFmm/03)” (Constanzo et al, pg. 2-14). A more detailed study to determine the potential for Garry Oak ecosystem restoration in Haro Woods is a possible future restoration project.

The ecological integrity of Haro Woods is challenged by human disturbance and by invasive plant species. As a remnant natural area in an urbanized neighbourhood, Kowbel et al suggest that Haro

Woods has lost its ecological memory. The target trajectory for the restoration of Haro Woods will need to take into account human influences. The University's stated objectives suggest that Haro Woods will be maintained in a "natural" state for local flora and fauna habitat, however use of the property for human recreation, educational research, or other activities are inevitable due to its proximity to development and as part of the university campus. Also, the biological integrity of Haro Woods will be challenged by the surrounding plant communities that are almost entirely introduced by humans. In its Invasive Management Species Management Strategy, the District of Saanich recognizes these conflicts, and suggest categorizing appropriate levels of response for established invasive species (Schaefer, 2012). The Cadboro Bay Resident's Association is also concerned about extensive bicycle trail building for off-road bicycle recreation has occurred. While acknowledging these challenges will need resolution in the long term, this project's goal is to undertake simple positive action in the short term that can inspire all stakeholders to contemplate the underlying ecological influences acting on Haro Woods and move forward on an appropriate management plan.

## **Methods**

Haro Woods as a potential restoration site was identified by students in the Environmental Studies Student Association in Spring 2012. A preliminary literature review included the UVic Natural Features report describing the biophysical characteristics of Haro Woods, and two undergraduate class projects completed in 2009 looked at the issues facing Haro Woods and nearby Mystic Vale. An interview with local resident Debra Dickson of the Cadboro Bay Resident's Association provided recent background history of the site and the current status of the ownership of Haro Woods. Finally, a review of the recently completed Invasive Species Management Strategy by Valentin Schaefer, Ph.D., RPBio. for the District of Saanich assisted in the assessment of the invasive species management approach to the site.

On July 5, 2012, observations on vegetation and from a soil pit were recorded in a representative 10 metre by 10 metre plot to confirm the biophysical characteristics of the site (see Ground Inspection Form in Appendix for detailed information). Via the Restoration of Natural Systems department, permission to conduct restoration activities in Haro Woods was obtained from UVic's Facilities Management.

The remainder of the project consisted of organizing a group of students to plan and carry out the restoration work party. Recruitment of students for the project commenced in the Fall of 2012 via the Restoration Volunteer Network Club (RVN), a student run club, at the University of Victoria Student Society Club Days two day event. Established a year earlier, the goal of the RVN is to mobilize students for restoration projects in the local community. Haro Woods is the first on campus project to be organized through the club. E-mail notice of the project was forwarded via the RVN and the Environmental Studies Student Association (ESSA) list-serv mailing lists. As a result, four students responded with an interest in organizing a work party. The students were from the Departments of Geography, Environmental Studies and Biology, with no courses in the Restoration of Natural Systems program, although one student had participated in restoration work parties off-campus.

Two orientation and planning meetings were held mid-October (see Appendix for comprehensive meeting agenda and notes). The first meeting included a discussion of “What is Restoration”, a brief history of Haro Woods, a primer on biophysical assessment, and a walking tour of the site. The purpose of the first meeting was to provide an orientation to students who did not have a background in restoration. The second meeting was held to organize the details of the restoration work party, including the targeted invasive species, date, and other details. Templates on how to organize a work party from Seattle based EarthCorps, a non-profit restoration group were shared for use in future projects (see Appendix).

The work party to remove *Daphne* from Haro Woods was scheduled for November 17<sup>th</sup>, 2012, following student Reading Break. Notice of the event was circulated via RVN and ESSA e-mail list-serv. Eight students responded with an intention to participate, including five new students who had not been involved in the previous organizing meetings. A pamphlet describing the safety issues concerning handling *Daphne* was included in a confirmation e-mail (see Appendix). On the assigned day, four students participated in the work party. The work party activities included a walk through the site identifying the invasive species present; identification of *Daphne*, and a demonstration of removal techniques (pulling or cutting below root collar). Over the next couple of hours, the students were able to clear all occurrences of *Daphne* in the designated area between a path and the southern perimeter of Uvic's portion of Haro Woods (roughly half of the UVic owned site). A feedback form was circulated



and returned by one of the students to record their observations of Daphne (attached as Appendix).

## **Results and interpretation**

On a biophysical level, observations of the UVic Natural Features Study and other undergraduate class reports were confirmed. Haro Woods is in a disturbed condition with English Ivy, Holly, Daphne, Scotch Broom, Himalayan Blackberry and non-native grasses present. By far the most prevalent invasive species with between 50% and 100% ground cover is English Ivy. In addition, modifications to trails for bicycle jumps were found in some areas.

The work party detected approximately 30 occurrences of Daphne in the prescribed restoration area of approximately 0.5 hectares between a foot path and the southern boundary of Haro Woods with residential houses. The frequency of Daphne was between 10 and 30 metres between occurrences. At each occurrence, between 5 and 10 individual plants were present on average, with one occurrence of over 40 plants. Typically, the occurrence consisted of one mature plant, between 0.5 metre and 1.0 metre in size, and a number of smaller (<0.25 metre tall) individuals located around it. Based on size, these smaller individuals are thought to be the offspring of the sexually reproductive mature plant. Occurrences of Daphne tended to be in disturbed areas where the overstorey and/or understorey was open, for example close to a fence between the backyards of neighbouring houses (approximately 25% of occurrences) and close to a pathway through the site (approximately 25% of occurrences). All occurrences of Daphne were treated by pulling smaller plants or by cutting below the root collar for larger plants. Removed plants were left on-site to decompose.

The physical activity of the removal of Daphne will have limited long term impact on the ecological integrity of Haro Woods. Although a 100 per cent removal rate for Daphne was achieved in the prescribed restoration area, it is likely that new occurrences of Daphne will occur, perhaps from seed bank sources, or from transmittal of seeds from plants in adjacent areas of Haro Woods. Revisiting the site in three years will be necessary to remove new occurrences of Daphne before they become sexually mature and are able to reproduce. The major invasive species affecting vegetation is English Ivy and it will remain the dominant factor in restoration the area. Other human disturbance factors remain, including the construction of trails by bicycle enthusiasts.

On a social level, the establishment of a student led restoration group for campus restoration is a positive development. In two undergraduate class reports on Mystic Vale and Haro Woods, both suggest that a lack of resources for restoration as an issue for improving natural areas on campus. Kowbel et al (2009) provide an overview of the site history and biophysical characteristics of Haro Woods. The focus of their report was the uncertain zoning status of the Saanich owned area of Haro Woods and lack of a concrete management plan for improving the ecological integrity of the site. Their concern was with the social/institutional context surrounding the public process of park creation and practical steps towards fulfilling conservation of Haro Woods. Among their recommendations was establishment of restoration group to carry out actions supporting ecological processes. Similar to the Haro Woods report , Baum et al (2009) identified lack of resources, community awareness, human disturbance and reliance on “temporary fixes” as the main issues in Mystic Vale. They also suggest in their report creation of a long-term and permanent restoration group.

The main issues facing these urbanized natural areas (human disturbance and invasive species) were confirmed in assessing Haro Woods in 2012. To address the lack of resources for restoration, this project's goal is to activate the latent resources of the university student population to create a permanent restoration working group within the Restoration Volunteers Network club. At least two of the participants in the Haro Woods project team have expressed interest in planning a subsequent project in the next semester. The professor of the Environmental Studies department's restoration class (course ES341 Ecological Restoration) is interested in having the class participate in the next semester. In this respect the project was successful in addressing the issue raised in previous student class projects by engaging students to be involved in future projects.

## **Discussion and Recommendations**

What follows is a discussion of how the RVN project team was developed and how to continue the activities of the RVN club's campus restoration group.

## Structure and Organization

The approach to organizing the student population is based on the following ideas adopted from permaculture style principles:

- Do what you can, focus on practical actions rather than large, diverse problems
- Utilize easily applicable technology and use the least effort to create the biggest effect
- Design projects with collaboration rather than competition for resources
- Outcomes defined internally according to group decision making
- Mistakes are learning opportunities

There are also similarities in this approach to Jay Conrad Levinson's concept of “Guerrilla Marketing”, a marketing program utilizing small scale unconventional means to create engagement with products, brands or ideas.

“Levinson identifies the following principles as the foundation of guerrilla marketing:

- Guerrilla Marketing is specifically geared for the small business and entrepreneur.
- It should be based on human psychology rather than experience, judgment, and guesswork.
- The primary statistic to measure your business is the amount of profits, not sales.
- The marketer should also concentrate on how many new relationships are made each month.
- Create a standard of excellence with an acute focus instead of trying to diversify by offering too many diverse products and services.
- Instead of concentrating on getting new customers, aim for more referrals, more transactions with existing customers, and larger transactions.
- Forget about the competition and concentrate more on cooperating with other businesses.
- Guerrilla marketers should use a combination of marketing methods for a campaign.
- Use current technology as a tool to build your business.
- Messages are aimed at individuals or small groups, the smaller the better.
- Focuses on gaining the consent of the individual to send them more information rather than

trying to make the sale.

- Commit to your campaign. Use Effective frequency instead of creating a new message theme for each campaign.”

(From Guerrilla Marketing entry on “Wikipedia”, [www.wikipedia.org](http://www.wikipedia.org), accessed on December 19, 2012).

Adapting Guerrilla Marketing principles to the marketing of the RVN club, specifically the on campus restoration project context, suggests the following insights.

- A student club is an equivalent to a small business in size, resources and organization. The on campus project team runs as if each project is run by an entrepreneur.
- The mandate is to engage students based on their interest in nature and a desire for action and organizing other students.
- The primary measure of success is following through on specific recommendations identified from class projects and not in the creation of brand new projects or on trying to solve a multitude of issues.
- The club works on recruiting new members to become organizers of projects, not simply as workers for projects.
- The project team creates a standard of excellence based on small work party style actions.
- Utilize key relationships with the University and community groups to grow projects (ie. engage ES341 class students).
- Look for projects that run collaboratively with the University sustainability mandate or with outside partners without depleting resources.
- Use a variety of marketing methods including Club Days, e-mail, social media, video's , and other innovative methods to promote awareness of the RVN club.
- Use current technology such as the ESSA and RVN e-mail list-serv and Facebook page.
- Keep each project groups small so messages are aimed at individuals or small groups, the smaller the better.
- Focus on educating each project team member to be an organizer so they can organize other small groups.

- Keep the message of the RVN project team consistently focused on grass-roots organization with tools and techniques for developing student activation around restoration projects, regardless of the individual project goal (ie. Daphne removal).

This approach has the following strengths: the ability to operate with little or no resources (ie. contact students via the RVN and ESSA e-mail networks); activation of students by fellow students to expand resources and ensure continuity from year to year while conducting a variety of projects; a collaborative approach including UVic Facilities, students, and faculty; and experiential and educational development with practical work skills training for students. Weaknesses of this approach include: a limited influence outside of the ESSA and RVN club or project team members; a need for improved contact with community groups to coordinate projects and avoid any possible conflict in goals; and a need to establish further collaboration and sharing of resources with the University. Obviously, the approach does not attempt to address larger issues, such as what to do with overall management plans of natural areas on campus, or developing the public process / community engagement strategy for park creation (as in the case of Haro Woods).

## **Recommendations**

Through the activities of the on campus project team, the RVN club will be able to assist the University in reaching its commitments to preserving and enhancing natural areas on campus. According to the Vision section of UVic's Sustainability Action Plan (2009-2013), it states, “our physical campus can act as a learning laboratory for innovative programs, policies, infrastructure and activities” (pg. 4). Potentially, under a living laboratory concept, resources for restoration from the University include training and providing the physical tools and space for restoration work, while students will provide the hard labour required to organize and execute restoration projects. Public and private sector partners can also be involved in projects to provide equipment and/or specialized expertise. This model has already been in practice in the stream restoration in Mystic Vale, with a private contractor overseeing restoration activities executed by students.

The role of the university can be further integrated with the RVN club's mandate under the University of Victoria's specific sustainability goals. According to the Sustainability Action Plan

(2009), in the Goals, Campus Grounds, Food and Urban Agriculture section, it states, “ensure that 50% of natural areas on campus are healthy” (pg. 16). In the Additional Goals, Campus Grounds, Food and Urban Agriculture section, it states, “establish a campus native nursery and plant/seed nursery” (pg. 30). These goals commit the University to restoration activities and to physical structures for propagation of native species for restoration work.

In comparison, the University of British Columbia also endorses a “Campus as Living Laboratory” concept. According to Orion Henderson, Director, Operational Sustainability (via British Columbia Sustainable Energy Association webinar held on October 23, 2012), UBC's sustainability mandate includes the following aspects:

- meet provincially mandated greenhouse gas reduction goals;
- integrate operational and academic programs;
- define the campus as a living laboratory and conduct real-time experiments;
- partner with business, NGO's, public sector;
- provide scale up for projects and technology transfer style support.

(For more information see: <http://www.sustain.ubc.ca/our-commitment/about-ubc-sustainability-initiative/campus-sustainability>)

An activated, educated, organized, project focused team of RVN club members will provide an excellent resource to enable the University to implement a living laboratory style mandate and achieve its stated sustainability goals in campus grounds.

### **Time Line for Further Action**

The RVN club has the opportunity to expand and further develop over time. Although the continuity of the club will be dependent on the interests of future students, one possible time line for growth of the RVN club's project team is submitted as follows.

Year 1:

- Start group and provide initial basic training about invasive species.
- Goal of running two projects or work parties on campus.
- Develop templates for understanding restoration and for organization of work party activities.
- Utilize a variety of marketing methods to grow the resources of the RVN club project delivery team: ie. Facebook and video's or other resources from existing restoration groups (ie. see Earthcorps templates in Appendix).

#### Year 2:

- Continue to run two projects (one in each semester) utilizing templates
- Train in restoration of streams and native species propagation
- Engage the University concerning sustainability goals including the native species nursery and making 50 per cent of natural areas “healthy”

#### Year 3:

- Continue to run at least two projects (one in each semester)
- Coordination with UVic Facilities Management and public/private partners on native species propagation
- Prepare input on living laboratory model for Campus Sustainability Plan 2014-2018 as a basis for funding for future activities

#### Year 4:

- Continue to run at least two projects (one in each semester)
- Continue native species propagation and planting program
- Begin monitoring assessment of past projects, revisiting previous restoration sites to assess impacts
- In coordination with outside community groups and the University, organize focused events

such as:

- Elementary and high school visits to restoration sites
- Public Tours
- Presentation to RNS Restoration Conference
- Natural Area maintenance days (garbage collection, invasive species removal and native species propagation and planting)
- Trail mapping, building and maintenance
- Stream restoration or wetland restoration
- Outreach with user groups – ie. bicycle users for trails, pet owners, naturalists

With the above structure and organization in place, the actual projects undertaken can vary from year to year, while the resource of trained, engaged student restoration organizers is maintained and grown. It is hoped that by starting the RVN club project team in this direction, the mandate to engage students in restoration activities on campus will assist in the achievement of the University's sustainability goals with respect to its protected natural areas.

## **Acknowledgments**

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## **References**

Baum, Campbell, Chanoine, Struthers, “Towards a Future for Mystic Vale”, unpublished report, University of Victoria Environmental Studies 341, November 2009

Constanzo et al, “Restoring British Columbia's Garry Oak Ecosystems: Principles and Practices”,



Garry Oak Ecosystems Recovery Team, 2011

“Campus Plan”, University of Victoria, May 2003

“Garry Oak Ecosystems, Ecosystems at Risk in British Columbia series”, BC Ministry of Environment, Lands and Parks, October, 1993

Green, R. and Klinka, K., “Field Guide for Site Identification and Interpretation for the Vancouver Forest Region”, BC Ministry of Forests, 1994

Harrop-Archibald, H., “UVic Natural Features Study: Bowker Creek, Cunningham Woods, Upper Hobbs Creek/Mystic Vale”, Restoration of Natural Systems Program paper, UVic, 2007

Kowbel, Neville, Ranns, Richter, Schultz, “Haro Woods Restoration Proposal”, unpublished report, University of Victoria Environmental Studies 341, March 2009

Schaefer, V., “Saanich Invasive Species Management Strategy”, District of Saanich, February 15, 2012

Slavin, K., “Saanich, CRD Look to Exchange Haro Woods Lands”, Saanich News, September 16, 2011 (<http://www.saanichnews.com/news/129971708.html>)

“Sustainability Action Plan: Campus Operations 2009 – 2013”, University of Victoria, 2009

## Appendices

BRITISH COLUMBIA		GROUND INSPECTION FORM					
G <input type="checkbox"/> (1) V <input type="checkbox"/>	PHOTO (2)	X:	Y:	DATE (3) July 8/12			
PROJECT ID. (4) Harro Woods		SURV. (5) A.M.					
MAP SHEET (6) 0477+2		PLOT # (7)		POLY. # (8)			
UTM ZONE (9) 10u		LAT. / NORTH (10)		LONG. / EAST (11) 5368382			
ASPECT (12) N		ELEVATION (13) 20 m					
SLOPE (14) 0 %		SMR (15) 4		SNR (16) R			
MESO SLOPE POSITION (17)		<input type="checkbox"/> Crest		<input checked="" type="checkbox"/> Mid slope		<input type="checkbox"/> Depression	
		<input type="checkbox"/> Upper slope		<input type="checkbox"/> Lower slope		<input type="checkbox"/> Level	
				<input type="checkbox"/> Toe			
DRAINAGE - MINERAL SOILS (18)		<input type="checkbox"/> Very rapidly		<input checked="" type="checkbox"/> Well		<input type="checkbox"/> Poorly	
		<input type="checkbox"/> Rapidly		<input type="checkbox"/> Mod. well		<input type="checkbox"/> Very poorly	
				<input type="checkbox"/> Imperfectly			
MOISTURE SUBCLASSES - ORGANIC SOILS (19)		<input type="checkbox"/> Aqueous		<input type="checkbox"/> Aquic		<input type="checkbox"/> Perhumid	
		<input type="checkbox"/> Peraquic		<input type="checkbox"/> Subaquic		<input type="checkbox"/> Humid	
MINERAL SOIL TEXTURE (20)		<input checked="" type="checkbox"/> Sandy (LS,S)		<input type="checkbox"/> Silty (SiL,Si)			
		<input type="checkbox"/> Loamy (SL,L,SCL,FSL)		<input type="checkbox"/> Clayey (SiCL,CL,SC,SiC,C)			
ORGANIC SOIL TEXTURE (21)		SURF. ORGANIC HORIZON THICKNESS (22)					
<input checked="" type="checkbox"/> Fibric		<input type="checkbox"/> Mesic		<input checked="" type="checkbox"/> 0-40 cm		<input type="checkbox"/> > 40 cm	
		<input type="checkbox"/> Humic					
HUMUS FORM (23)		ROOT RESTRICTING LAYER (24)					
<input type="checkbox"/> Mor		<input checked="" type="checkbox"/> Moder		<input type="checkbox"/> Mull		Depth _____ cm Type _____	
COARSE FRAGMENT CONTENT (25)							
<input checked="" type="checkbox"/> < 20% <input type="checkbox"/> 20-35% <input type="checkbox"/> 35-70% <input type="checkbox"/> > 70%							
TERRAIN		COMPONENT: (26) TC1 <input type="checkbox"/> TC2 <input type="checkbox"/> TC3 <input type="checkbox"/>					
TERRAIN TEXTURE (27)	SURFICIAL MATERIAL (28)	SURFACE EXPRESSION (29)		GEOMORPH PROCESS (30)			
1 S	1 F <sup>b</sup>	1 ↓		1 F			
2	2	2		2			
ECOSYSTEM		COMPONENT: (31) EC1 <input type="checkbox"/> EC2 <input type="checkbox"/> EC3 <input type="checkbox"/>					
BGC UNIT (32) CDFmm		ECOSECTION (33)					
SITE SERIES (34) 04 Fd G <sub>y</sub>		SITE MODIFIERS (35)					
STRUCTURAL STAGE (36) 5mM		CROWN CLOSURE (37) 95 %					
ECOSYSTEM POLYGON SUMMARY				TERRAIN POLYGON SUMMARY			
	%	SS	SM	ST		Classification	
EC1	100	Fd G <sub>y</sub>	-	5mM	TC1		
EC2		(38)			TC2	(39)	
EC3					TC3		



**DOMINANT / INDICATOR PLANT SPECIES**

TOTAL % (44)				A: Tree 90		B: Shrub 50		C: Herb 100		D: Ground 10	
L	SPECIES	%	L	SPECIES	%	L	SPECIES	%	L	SPECIES	%
(40)	(41)	(42)	D	Rubus urs	Tr.						
A	Beurman	15	D	Kalipar	10						
A	Arbman	5	D	Hed. hel	5						
A	Acer mac	60	D	Climdin	20						
A	Aldurub	10									
B	Salisit	10									
B	Holidis	20									
C	Mahoner	75									
C	Polys mun	15									
C	Adenbic	Tr.									
C	Daph lau	Tr.									
C	Lac mura	Tr.									

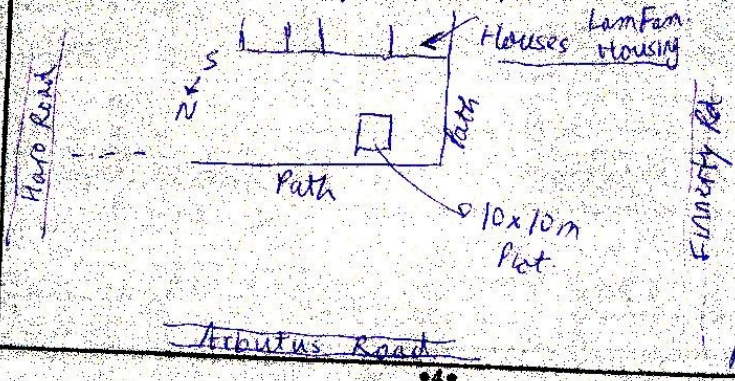
COMPLETE  (43) PARTIAL

**Tree Mensuration (45)**

Spp.	DBH	Ht. Calculation to DBH						Ht. to DBH	Total HT	BH Age	Path Y/N
		Top	Bot	SD	SL	HD	HT				

**NOTES (site diagram, exposure, gleying, etc.)**

(46) General observations: incidence of English Ivy up to 100% ground cover; Scotch Broom, Him Blackberry and Hedly



## **Restoration Volunteers Network**

### **On Campus Restoration Project Team**

#### **2012 Fall Session**

#### **Restoration of Haro Woods**

##### **Members:**

Andrew MacKinnon

Taylor Sands

Katie Archer

Amanda Evans

Maryanna Kenney

October 17, 2012

**Location:** Finnerty Cafe, Haro Woods

**Time:** 5:00 pm – 6:30 pm

**Purpose:** The On Campus Restoration Project Team's goal is to identify projects and areas at UVic for restoration, and to organize and carry out work parties with students to improve UVic's natural environment. This meeting's purpose is to provide background and introduction to the site, restoration theory and practice, biological assessment techniques, and links to further information on vegetation (invasive and native species).

##### **Outline/Agenda**

###### **a) What is Restoration?**

- present use and condition versus previous uses and conditions
- biological integrity and trajectory
- novel ecosystems and biological intervention (Higgs)



## Site History

- First nations uses
- Colonization
- Pre-WWII uses
- WWII – military training facility
- Establishment of the University - 1962
- Property transfer history – 1994 included in Commonwealth Nature Legacy by Province of BC
- Surrounding uses – residential, Queen Alexandra Hospital
- 2010 – CRD purchases for Wastewater Treatment facility site

Link to Saanich news: <http://www.saanichnews.com/news/129971708.html>

## Current Biological Status

- Description of site conditions by CRD study:

<http://www.wastewatermadeclear.ca/inthecrd/saanich-east-spring-2010.htm>

- Description in UVic Natural Features Study (Harrop-Archibald, 2007) of vegetation present (pg. 9)

<http://www.uvic.ca/sustainability/assets/docs/naturalfeatures1.pdf>

- Impact of Invasive Species in Saanich:

<http://www.saanich.ca/living/natural/invasive.html>

## **2. What is the Restoration Projects target?**

- Defined as a trajectory – not by an end-point
- Inclusive of certain forms of human involvement
- Meeting the needs of present and future stakeholders (sustainability)

- Property Owners – CRD, Saanich, UVic

- Community users – Cadboro Bay Community Association, Richard Hobbs school, Queen

Alexandra

- Neighbours – recreation hikers and bikers

- Students for class projects

### **3. How to assess site conditions (A primer of ER312B)**

- Basic natural conditions: hydrology, soil properties, vegetation, animal habitat, includes human influences as part of ecosystem
- Cause and effect – interconnectedness of site beyond site boundaries and temporally

#### Terrestrial Ecosystem Mapping (TEM)

- map units – BC is divided into different areas based on Biogeoclimatic (BGC) factors –
- The Vancouver Region (South Coast) has 21 subzones.
- Reference: “A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region”, Land Management Handbook Number 28, 1994, Min. of Forests, Prov. Of BC, avail. from Queen's Printer.
- Southeast Vancouver Island and the Gulf Islands fall under the Coastal Douglas-fir Moist Maritime Subzone (CDF mm) split into 8 site series

#### Identifying Site Series

- based on site quality – climate, soil moisture regime (SMR) and soil nutrient regime (SNR)
  - site series are confirmed by vegetation analysis – presence of indicator species
  - Use the Ground Inspection Form and Data description process to collect and record relevant data to determine the site series.
- **Links to Vegetation Species and Ecosystems**

#### Native Species

Evergreen Native Plant Database (Canada)

<http://nativeplants.evergreen.ca/search/guided.php?province=BC>

BC Government's Species and Ecosystem Search

<http://www.env.gov.bc.ca/atrisk/toolintro.html>

BC Coast Region Species and Ecosystems of Conservation Concern

<http://www.geog.ubc.ca/biodiversity/factsheets/>

Garry Oak Ecosystem Recovery Team

<http://www.goert.ca/>

## Invasive Species

Links to Invasive Species Descriptions for Saanich

<http://www.saanich.ca/living/natural/invasivebrochures.html>

Coastal Invasive Plant Committee

<http://www.coastalinvasiveplants.com/invasive-plants/priority-plants>

Control – maintenance: Thistle, Holly, Ivy, H. Blackberry, Orchard Grass, Scotch Broom

Contain – prevent spread: Spurge-Laurel Daphne

Invasive Species Council of BC

<http://www.bcinvases.ca/invasive-species/invasive-plants>

Report A Weed – Prov. Of BC Mapping Site

[http://webmaps.gov.bc.ca/imf5/imf.jsp?site=mofr\\_iapp&startup=raw](http://webmaps.gov.bc.ca/imf5/imf.jsp?site=mofr_iapp&startup=raw)



## **Restoration Volunteers Network**

### **On Campus Restoration Project Team**

#### **2012 Fall Session**

#### **Restoration of Haro Woods**

##### **Members:**

Andrew MacKinnon

Taylor Sands

Katie Archer

Amanda Evans

Maryanna Kenney

October 24, 2012

**Location:** Finnerty Cafe

**Time:** 5:00 pm – 6:30 pm

**Purpose:** The On Campus Restoration Project Team's goal is to identify projects and areas at UVic for restoration, and to organize and carry out work parties with students to improve UVic's natural environment. This meeting's purpose is to plan and organize a work party of UVic students to carry out restoration in Haro Woods.

##### **Outline/Agenda**

a) **What is the work party's goal?**

- Social Goals:
  - link UVic with community users

- raise awareness of Haro Woods current state among students
- establish precedent for further actions to restore campus areas with stakeholders
  
- Biological / Environmental Goals:
  - Assess what can be done feasibly over one work party versus long term
  - Affect on current ecosystem trajectory
  - Address any habitat or use impacts
  - Restoration after removal of invasive species

Links to Invasive Species Resources:

Saanich Invasive Species Management Strategy

<http://www.saanich.ca/parkrec/parks/natural/invasive.html>

Links to Invasive Species Descriptions for Saanich

<http://www.saanich.ca/living/natural/invasivebrochures.html>

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Seattle's Earth Corps Publications

<http://www.earthcorps.org/publications.php>

- Organizational Goals:
  - o Recruit students for future restoration projects – educate and inform
  - o Create and use templates for future restoration projects on campus
  
- Any other goals?

## **2. Examples of templates for work party organization and invasive species control**

- Best Management Practices for Invasive Species in BC Parks and Protected Areas Guidebook:
- [http://www.bcinvasiveplants.com/iscbc/images/stories/documents/otherpublications/BC-Parks-IP-Guide\\_web\\_sm.pdf](http://www.bcinvasiveplants.com/iscbc/images/stories/documents/otherpublications/BC-Parks-IP-Guide_web_sm.pdf)
- Coastal Invasive Plant Committee:  
<http://www.coastalinvasiveplants.com/take-action/how-to-control-invasive-plants>
- Seattle Earth Corps Templates

### **3. Setting Time and Date for the Work Party**

- Tasks to be allocated:
  - Tools
  - Food / Beverage
  - Notification – E-mail / Posters
  - Contact with ESSA, Restoration Volunteer Network, ES341,
  - Other?

### **4. Post-Work Party Activities**

- Project write-up: Andrew's ER 390
- Follow-up meeting / Plan for next semester

EARTCORPS TEMPLATES FOR WORK PARTY ORGANIZATION

# Volunteer Project Management Training

## Big picture planning for an event

- Communication within EC
  - Checking in with Chris about dates
  - Pass off info so that he can get it up on the website if appropriate
- Setting up expectations for a crew, passing on specific event info and responsibilities
- Utilize templates as resources to make your planning process as efficient as possible
  - Handy planning documents

## Planning the Prep day

- Overall goals of a Prep Day include:
  - Giving CM's a bigger picture of the park and community, more ownership and leadership opportunity, sharing more info about the groups attending the event
  - Reviewing the agenda, tools for the event
  - Getting CM's oriented to the site, including site priorities, boundaries, hazards, etc.
  - Creating access into site or removing/addressing hazards
  - Loading or preparing materials for the event
- Handy Prep Day documents
  - *Site Prep Worksheet for CM's*
    - Each CM should fill one out, detailing their plans for their station at the event. Having to write all the info and draw a map of the site helps them hone in on the details

## Planning the Event

- Basic event templates
  - *Basic Agenda Template*
  - *Basic Tool List Template*
    - I use this for bigger events with multiple stations, I tally up all the tools on this spreadsheet and then the day before the event when number of volunteers is finalized, I cut and paste these tools onto my Agenda

## **Day of the Event**

- In AM give out Station Packets when appropriate, they usually contain all or some combination of the following information:
  - *ERP*
  - *Event Agenda and Tools*
  - *Volunteer Event Introduction Talking Points* (including agency and park history)
  - Map of the Park
  - Any specific information on post-event tasks at the park or back at EC

## **After the event**

- Post-Event documents
  - *Event Debrief Ideas for Crews*
    - A work in progress, feel free to add in your thoughts on ways to debrief events. Each event is different too and you will see what pieces need to come out in a debrief
- Pass relevant feedback on to Volunteer Program staff
- Ensure all work logs are complete
- Follow up with agency contacts as needed

## **SITE PREP WORKSHEET**

What are your site boundaries? Flag your borders. Make sure your neighbors agree.

Determine your work.

- What invasive plants are present? Draw a site map with hot spots indicated
  
  
  
  
  
  
  
  
  
  
- Are you doing maintenance or new removal? How might one task or the other affect how much ground your volunteers cover?
  
  
  
  
  
  
  
  
  
  
- Where will you put invasive weeds removed?
  
  
  
  
  
  
  
  
  
  
- Where will you begin work with your volunteers? How will you distribute the work to be done among them, aka delegate tasks?
  
  
  
  
  
  
  
  
  
  
- Can you identify any hazards in your site? What is your plan to deal with them?
  
  
  
  
  
  
  
  
  
  
- How is access to your site? Is it hard to get to? What can you do to make it easier? Safer?
  
  
  
  
  
  
  
  
  
  
- What can you do in your site now to prepare for the event?

Think about tools – what would you like to have and how many? Check out your tool list. Are there any tools not listed that you think could be helpful in your site? Add them to your sheet

Set a goal for what you'd like your volunteers to accomplish during the event. For example, set the goal of reaching a particular part of your site or a certain number of square feet. Think about how to communicate this goal to your volunteers.

Pace your entire site so that, post event data collection will be quick and easy.



## Volunteer Talking Points

### INTRODUCE YOURSELF

#### EC HISTORY

- Seattle-based organization whose mission is to build global community through local environmental service
- We bring people from all over the world to learn environmental restoration techniques, they take the knowledge home and spread it
- Share your personal connection to EarthCorps and why you are here today

#### SITE HISTORY

- 

#### WHY IS TODAY'S WORK NECESSARY?

- Invasive plant species like English Ivy and Himalayan Blackberry were brought to his area and planted by pioneers for their desirable characteristics of staying green all year round or tasty fruits.
- These species can compete with our native plants and take over an ecosystem, making it so that nothing else can grow. This leaves us with forests of nothing but ivy and blackberry.
- Ivy can actually kill trees by growing up into them, weighing them down and stealing their sunlight.
- Explain what the project for the day is

### CITY AGENCY

- 

### SAFETY

- Urban Hazards – trash, bottles, rusty objects, needles
- Environmental Hazards – overhead hazards, footing, weather, sites bordered by steep slopes
- Tools – show how to properly carry and use each tool
- Travel corridor – watch out for foot and bike traffic on trails. Off leash dogs
- Volunteers should never work where they don't feel comfortable!!
- Ask if anyone is allergic to **BEES**
- Let volunteers know where bathroom is located

## **INVASIVE REMOVAL TECHNIQUES**

- Look out for native plants/id native plants in your station and point them out to volunteers
- Demonstrate** how to remove invasive plants or plant – whatever the tasks of the day

**PARK – DATE – Vols**

**CREW/Staff -**

**TOOLS AND MATERIALS SPREADSHEET**

	<b>TOTALS</b>		<b>Pack/Camera/First Aid Kit/Phone</b>
<b>Pruners</b>			Tables
<b>Loppers</b>			Rubber Gloves
<b>Tillers</b>			Leather Gloves
<b>Handsaw</b>			Canopies
<b>Buckets</b>			A-Frame Signs
<b>Rakes</b>			Volunteer Boxes
<b>Shovels</b>			Coffee & Hot Water
<b>Pitchforks</b>			Yellow Volunteer Vests
<b>Tarps</b>			Bin W/Extra Cups/Cliff Bars
<b>Trowels</b>			Orange Cones
<b>Weed</b>			Numbered Stakes
<b>Wrench</b>			
<b>McLeod</b>			FULL Water Jugs
<b>Flagging</b>			Compost, Recycling Bins
<b>Wheel</b>			'Be Green' Sign
<b>Barrow</b>			

**Agenda**

7:30 Circle Up

8:00 Leave EC

Put sign at entrance to park

8:30 Arrive at Park

• **Tour sites**

- Set up table, unload tools etc.

**10:00 Event starts, sign-ups**

10:10 **Intro-Names**

- EarthCorps and CITY AGENCY
- “What is environmental restoration and why is it important?”
- Safety – urban and environmental hazards
- Today’s Project –

Gather tools and walk to site point out some different plants along the way

10:20 Work Begins!

12:00 Lunch Break

12:20 Return to work

1:50 Group closing, feedback- reminder about upcoming events

*Maintenance* \_\_\_\_\_

*Removal* \_\_\_\_\_

*Planting* \_\_\_\_\_

*Mulching* \_\_\_\_\_

***AFTER EVENT:***

- *After pics*
- *Gather Signs*
- *Complete EarthCorps work log*
- *Download & name pictures*

# **Event Name and Park**

## **Event Date**

Event Staff:

Number of Stations/Number of Volunteers Per Station

## **Roles:**

### **Volunteer Leads:**

**Site 1:**

**Site 2:**

**Site 3:**

**Site 4:**

**Site 5:**

**Site 6:**

**Site 7:**

**Site 8:**

**Site 9:**

**Site 10:**

**Site 11:**

**Site 12:**

### **Floaters:**

### **Hospitality Set Up and Maintenance:**

### **Registration:**

### **Parking:**

### **Photos:**

## **TO DO**

- Set up Site visit
- Order Mulch
- Order Toilets
- Update and Print ERPS
- Information to Crews
- Site Descriptions Sheet

- Event Agenda
- Event Tool List
- Event Materials List
- Prep Day Agenda
- Prep Day Tool List
- Volunteer Lead Packets
  - Tool List
- 
- 
- Schedule of the Day
- Map
- Floater Packets
  - Map
  - Schedule of the Day
  - Site Descriptions
- Talking Points for Volunteer Leads

- **Prep Day Agenda**

- 7:30 Circle Up

- 7:45 Meet in Corps Room for Event Info

- Who? Volunteers: how many, their goal; Partners: their goal

- What? Type of work to be done

- Why? How does this project further the goals in the park? In the community?

- How? Go over CM role in the day

- When? Event Time frame, schedule of the day

- Other Logistics – who is riding in what van, particular things to bring or know

- Prep Day Schedule

- 

- 8:30 Load Vans with Prep Tools

- 9:30 Arrive at Site

- Site Tour

- Prep Work in Sites

- When finished, report to central location for next assignment

- 

- 11:45 Circle Up

- Who is finished? Who needs help? What is left to do?

- 

- 12:00 Lunch

- 

- 12:45 Back to Work

- Finish prep work in sites

- If prep is done, maintenance in past sites or work in adjacent sites inappropriate for volunteers

- 

- 2:30 Circle Up for Loading Assignments

- 2:45 Leave for EarthCorps

- 3:15 Loading begins

- 4:00 Meet in Corps Room for Questions and Wrap Up
- 
- **Materials List**

○ Van #	○ Van #	○ Van#	○ Van#	○ Van#
○ Volunteer box	○ Tools	○	○	○
○ vests	○	○	○	○
○ # on stakes	○	○	○	○
○ tables	○	○	○	○
○ canopies	○	○	○	○
○ Trash bins	○	○	○	○
○ Garbage bags	○	○	○	○
○ Extra cups/snacks	○	○	○	○
○ gloves	○	○	○	○
○ cones	○	○	○	○

- **Event Agenda**
- 7:30 Circle Up
- 
- 7:45 Leave EarthCorps for the site
- Put out directional A-frames along the way
- 
- 8:30 Arrive at site for set up
- 
- 9:15 Circle Up
- 
- 9:30 Ready for volunteer arrival
- 
- 10:00 Volunteers Arrive
- 
- 12:00 Break
- 
- 12:20 Back to work



- 
- 1:35 10 minute warning to volunteers – Pace your site
- 
- 1:45 Start reflection
- 
- 2:00 Event Ends
- 
- 2:10 Start Master Tool Count and Loading
- 
- 2:45 Circle Up for Next Steps and Clean up Assignments
- 
- 3:00 Leave for EarthCorps
- 
- 3:30 Arrive EarthCorps for Clean Up
- 
- 4:15 Circle Up for Team Reflection
- 
- **Project Manager/Event Point Person**
  - Complete work logs and turn in
  - Send thank you email
  - Download and name pictures, send to agency contact if necessary
  - Make sure all loose ends are tied up



### **Site Specific Volunteer Project Scoping**

#### **Notes**

Park/Project Name:

Responsible Agency:

Volunteer Capacity:

Potential Volunteer Groups:

Potential Partners:

### **Site Visit Materials Check List:**

- Flagging
- Sharpies
- Wooden Stakes for Photo Points
- Camera with Charged battery
- Loppers and/or shovel
- Any notes or background info on the site
- ERP

### **Directions (for staff & volunteers)**

### **Parking Location**

### **Hazards**

### **Restoration Site Access**

**Determine Work Site or Sites:**

**Invasive Disposal**

**Plant Staging**

**Materials (Specific to project)**

**Tool Needs (Specific to project)**

**Permits**

**Agency Follow-Up:**

## Haro Woods Restoration Volunteer Feedback

Date of Work Party: November 17<sup>th</sup>, 2012

Time: 10:00 am – 12:00 pm

Location: Haro Woods, UVic owned portion

Activity: Removal of Laurel-leaf Daphne

Please describe the following:

a. Approximately what was the occurrence of Daphne (ie. how much distance between finding plants) and about how many plants did you remove.

b. Roughly speaking, where did you find Daphne growing? If there was a variety of locations, please describe each occurrence separately and how frequently you found this location (ie. use a percentage of the total occurrences you found). For example, was there a lot of ivy or holly present, what was the ground cover, was it close to trees or shrubs, was there any obvious disturbance, close to paths, other?

c. At each type of location where Daphne was growing, what was the size and number of Daphne plants. Again, for a variety of occurrences, please describe the occurrences separately and how frequently you found this type of occurrence using a percentage). Please estimate the height of the plant(s) from the ground to top.

d. Was there any mitigating circumstances or any exceptional occurrences of Daphne that you found that didn't fit the normal pattern. Do you have any theories to explain them?

e. Lastly, was there any other observations that you had of the area? For example, seeing the deer, or finding something unusual in the forest that you didn't expect. Also if you talked to anyone, like the

housing neighbour, please write down what the conversation was like, what was their reaction to the restoration, etc.

## Haro Woods Restoration Volunteer Feedback

Date of Work Party: November 17<sup>th</sup>, 2012

Time: 10:00 am – 12:00 pm

Location: Haro Woods, UVic owned portion

Activity: Removal of Laurel-leaf Daphne

Received from Morgan

Please describe the following:

- a. Approximately what was the occurrence of Daphne (ie. how much distance between finding plants) and about how many plants did you remove.

The distance between plants was highly variable but patches of daphne were 10-30 metres apart with patches including 1-7 plants.

- b. Roughly speaking, where did you find Daphne growing? If there was a variety of locations, please describe each occurrence separately and how frequently you found this location (ie. use a percentage of the total occurrences you found). For example, was there a lot of ivy or holly present, what was the ground cover, was it close to trees or shrubs, was there any obvious disturbance, close to paths, other?

Daphne was most frequent in lighter patches along the path and fence line as well as in clearings within the patch.

Main Path: Every 15 m or so. 25%

Fenceline: Every 15 m or so. 25%

Interior: Every 20m or so, often in clearings growing close to Oregon grape, maidenhair fern or with mosses. 50%

In all of these areas Daphne seemed to be most common along paths.

c. At each type of location where Daphne was growing, what was the size and number of Daphne plants. Again, for a variety of occurrences, please describe the occurrences separately and how frequently you found this type of occurrence using a percentage). Please estimate the height of the plant(s) from the ground to top.

Main Path: Usually one or two large plants (up to 1m growing close together but I did find one patch of about 15 plants which were only 5-20cm high growing at the base of an Indian plum tree within a carpet of thick moss). I found about 20 plants in this area.

Fenceline: Plants about 0.75m and in groups of 1-5. Approximately 20 plants in this area.

Interior: Smaller plants here of up to 0.75m but mostly 0.5m. Again one area of small plants growing in moss. Approximately 40 plants in this area.

d. Was there any mitigating circumstances or any exceptional occurrences of Daphne that you found that didn't fit the normal pattern. Do you have any theories to explain them?

No

e. Lastly, was there any other observations that you had of the area? For example, seeing the deer, or finding something unusual in the forest that you didn't expect. Also if you talked to anyone, like the housing neighbour, please write down what the conversation was like, what was their reaction to the restoration, etc.

I chatted with a community member whose backyard backed onto the site. I let her know we were removing Daphne as part of a UVic RNS program project and we talked about the extent of invasives in Haro woods. She let me know that she had removed ivy from some of the large trees near her backyard and I encouraged her to keep removing invasives, both in Haro woods and as part of Saanich's "Pulling Together" program. She reacted very positively to the restoration project and was familiar with Daphne.

Obviously the area is blanketed in invasive plants and I'm interested to see what future restoration will look like, hopefully with the restoration club.