Stewardship Program
Results 2009
2009 Stanley Park Ecology Society Tree Ivy Removal Program

Background

English ivy (*Hedera helix*) is a common non-native, invasive plant species found in the Lower Mainland region. In Stanley Park, ivy is the most abundant invasive plant species and is the focus of invasive removal programs run by the Stanley Park Ecology Society (SPES). This species continues to have a significant impact on native species and habitat in Stanley Park (e.g., competition for resources, killing native species).

When ivy climbs trees and other structures, its form of growth changes and it begins to produce fruits and seeds. Seeds may be eaten by certain bird and mammal species or simply fall to the ground, facilitating both short and long distance dispersal. To slow the further spread of ivy in Stanley Park, it’s important to reduce the production of seeds.

In the spring of 2009, SPES initiated a tree ivy removal program where volunteers document and remove ivy that is growing up trees, shrubs and other structures in the Park. This program has two main goals:

- to slow the spread of ivy in Stanley Park and beyond, thus reducing its impact on ecosystems; and
- to protect and restore native species and natural structures ivy is negatively impacting.

To coordinate removal efforts, Stanley Park was divided into 6 removal zones. Each zone was assigned to a group of trained volunteers that worked to completely remove ivy from plants and natural structures.

Program Results

The following results are for work completed between April and August of 2009.

English ivy covering the ground and trees, both important wildlife habitats, in Stanley Park (Photo: Greg Ferguson).

English ivy fruits produced on climbing vines that spread into natural areas (Photo: Phil Vaud).
Volunteering

- Majority of volunteers participated in the summer, during good weather and on weekdays
- Volunteers ranged from youth to retired individuals

### Volunteer Effort

<table>
<thead>
<tr>
<th># of Sessions</th>
<th># Vols.</th>
<th>Total Hours (Avg. 3 hrs/session/vol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>60</td>
<td>180</td>
</tr>
</tbody>
</table>

### Vegetation Types

- Majority of ivy removed from trees (75%), with a similar number of conifers versus deciduous species
- Ivy may have selected trees versus shrubs based on their incidence, and/or greater growing surface, and/or potential height gain for ivy growth

### Vegetation Class

<table>
<thead>
<tr>
<th>Vegetation Class</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees</td>
<td>607</td>
</tr>
<tr>
<td>Shrubs</td>
<td>192</td>
</tr>
<tr>
<td>Unk</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>808</td>
</tr>
</tbody>
</table>
Decay Class

- 75% and 85% of coniferous and deciduous vegetation covered by ivy was living, respectively
- 40% of dead conifers with tree ivy were in decay class 8
- The above conditions may be due to a higher incidence of living versus dead trees and historical logging in the park, respectively

Coniferous Decay Classes

![Bar chart showing the number of coniferous decay classes](chart.jpg)

Figure 12. Classifying hardwoods on form and degree of decay

![Diagram illustrating the classification of hardwoods](diagram.jpg)

Discussion

The 2009 SPES tree ivy removal program at Stanley Park was very successful at achieving its goals. A large amount of consistent volunteer effort, over a short period of time, helped reduce the spread of ivy and protect a significant number of young, mature, and decaying trees in Stanley Park. Two zones were nearly complete by the end of 2009. Regular scheduling and data entry by volunteers made the program very efficient and effective. The tree ivy removal program will continue in 2010, with regular weekly sessions and expansion into other removal zones.

Volunteers clearing tree ivy from a mature western red cedar (Thuja plicata) (Photo: Phil Vlaud).
Acknowledgements

SPES would like to thank the many volunteers who have contributed their time and effort to help with this program. We also thank the following funders who supported the program: HSBC, Vancity, and EcoAction.

Further information on the tree ivy removal program and how you can help conserve Stanley Park’s ecology can be obtained by contacting our Stewardship Programs department: Phone: 604-718-6522.

What You Can Do To Help Stop the Spread of Invasive Plants

- Investigate the potential invasiveness of plant species before you buy them
- Remove invasive species from your property and/or natural areas
- Avoid letting invasive plants go to fruit or seed
- Dispose of garden waste and hanging baskets into a properly functioning compost, or by thoroughly drying out vegetative material
- Educate others about invasive species and the problems they pose
- Grow native plants that are naturally adapted to the local environment and provide wildlife habitat
- Native plants can be purchased at Garden Works and N.A.T.S Nursery, both of whom have voluntarily committed to stop growing and selling invasive plants
2009 Stanley Park Ecology Society Ivy Environmental Art Project

Background

Invasive species management is a key priority for the Stanley Park Ecology Society (SPES) and the Vancouver Park Board (VPB) in restoring naturally functioning ecosystems in Stanley Park. As such, significant effort and amounts of invasive species are removed from the park, with the main species being English ivy (*Hedera helix*).

Currently, all invasive plants removed from Stanley Park are incinerated. This ensures that these species will not re-grow and spread in other areas. This process involves a large amount energy and time, from moving invasive plant material to appropriate incineration sites and the resulting incineration process. In addition, the management of invasive species removes a large amount of biomass from the park. At sites where natural restoration processes are allowed to proceed, there may be a substantial time lag in the replacement of this biomass.

Given these two circumstances, the Ivy Project was initiated in the spring of 2009 by SPES and local artist Sharon Kallis through the Stanley Park Environmental Art Project. The project was completed in the spring of 2010.

Project Objective and Goals

Working together, our overall goal was to re-purpose invasive plant materials in ways that would turn their negative impacts into positive ecological and social benefits through an artistic and ecologically restorative process. This goal resulted in the following objectives:

- re-purpose invasive species (in particular English ivy) that are removed from Stanley Park into environmental art works so to reduce the amount of biomass being removed from management sites and being incinerated;
- create art works that mimic natural habitat structures found in Stanley Park;
- find alternative ways of restoring degraded sites with re-purposed plant materials;
- investigate the re-growth of invasive species, the use of structures by wildlife, and their benefit as a restoration material; and
- involve and educate the public in invasive species management and habitat restoration.
Project Results

- 3 sites were selected for the project: a control site, a treatment site, and a restoration site.
- Approximately 25 m³ of English ivy biomass was repurposed into environmental and restorative works.
- 9 natural habitat structures were created and installed on the control and treatment sites: 3 nurse logs; 1 snag; and 5 hanging nests.
- 6.58 m² of English ivy bio-netting, 5 native plant berms/wattles, and 32 native plants were used to stabilize and re-vegetate a 43.6 m² section of eroding slope.
- All structures were made by crocheting and weaving English ivy and Himalayan blackberry (Rubus discolor), both common invasive species removed from Stanley Park.
- 11 scheduled community events and 1 youth workshop were provided.
- 188 participants were involved in the project: 23 seniors; 114 adults; 18 youth; and 33 children.
- Project promotion was undertaken through the internet, email, posters, press releases, and 2 television interviews.
- A website was created to inform the public and other stakeholders about the project.
- Workshops held at the Stanley Park Nature House proved to be most effective in engaging the public.
- Observations of the control and treatment sites over a ten month period indicated the following conditions:
  - no English ivy or other plant growth was observed on structures;
  - structural ivy was dry; minor to moderate amounts of leaf material accumulated on structures; and
  - there was minor use of structures by wildlife and native plants.
Discussion

The Ivy Project was very successful in achieving the desired goal and its corresponding objectives. English ivy and Himalayan blackberry were found to be particularly useful and effective invasive plant species for re-purposing into wildlife habitat structures and restorative materials, and in maintaining or enhancing site biomass.

No re-growth of invasive plant material was observed following the plant drying process and after material was installed in the park. Native wildlife and plant use of structures was minimal, but this will likely increase with time and structure decomposition.

There was excellent outreach and public education accomplished regarding the concerns of invasive species in our environment and how they can be re-purposed in beneficial ways.

Overall, this project proved to be very environmentally, economically, and socially rewarding.

Acknowledgements

SPES would like to thank the following people, organizations, and funders for supporting this successful project: Sharon Kallis (the artist), the Vancouver Board of Parks and Recreation, the Community Arts Council of Vancouver, the Vancouver Foundation, Vancity & Citizens Bank of Canada, the British Columbia Arts Council, and the Canada Council for the Arts.

Further information on the Ivy Project can be found at http://theivyproject.wordpress.com/ or by contacting SPES’s Stewardship or Public Programs departments: Phone: 604-718-6522.

Volunteers restoring habitat with re-purposed English ivy bio-netting and planting of native species at slope restoration site (Photos: Thomas Strand).
2009 Stanley Park Ecology Society Ivy Growth Monitoring Program

Background

English ivy (*Hedera helix*) is a common non-native, invasive plant species found in the Lower Mainland region. In Stanley Park, this species is the most abundant invasive plant and is the focus of much of the removal and restoration efforts by the Stanley Park Ecology Society (SPES).

To our knowledge, no information is available on the timing and rate of growth for ivy in this region. This biological information is important to SPES and others in order to make informed management decisions.

In July of 2009, Phil Viaud and SPES staff implemented an ivy growth rate monitoring program with the objective of acquiring further knowledge so as to better manage for this invasive species and conserve native species in Stanley Park.

The goal of this program was to measure the timing and rate of ivy growth up trees and along the ground.

The growing tips of ivy were measured on 10 trees and 10 ground samples in 2 locations within Stanley Park. Timing and growth data was collected over three months in 2009.

Program Results

The following results are for data collected weekly from July 10 to October 9, 2009 (no data were collected in September). A total of 57 hours of volunteering was committed to this program.

General Observations

- The last 3 internodes (i.e., area between 2 leaf nodes) showed growth. Sometimes only the last 1 or 2;
- Fast growing vines added 1 new internode per week; and
- Growth slowed during dry, warm periods and near the start of October.
Tree Ivy Growth

- 0 to 68 mm per week
- 8 to 650 mm for the 12 week period
- Estimated yearly growth: up to 1.3 m

Ground Ivy Growth

- 0 to 83 mm per week
- 0 to 798 mm for the 12 week period
- Estimated yearly growth: up to 1.6 m

Ground Ivy Growth: Time Lapse Images over an 8 Week Period
Discussion

The 2009 SPES English ivy growth monitoring program was very successful in achieving its goal. The initial timing of ivy growth was not documented in 2009 due to the start date of the program. However, ivy was found to slow its growth during dry, warm weather and cool weather with reduced sunlight (i.e., early October). There was also a large variation observed in the potential growth of ivy. This is possible the result of site specific environmental conditions, but may also reflect specific plant genetics and/or adaptations.

Ivy growth monitoring will continue in 2010 to assess the start time of growth and compare new data with that collected in 2009. In the future, SPES hopes to incorporate ivy growth data into our invasive species mapping to ascertain the spread of ivy in Stanley Park so as to aid in the successful management of this species.
Acknowledgements

SPES would like to thank Phil Viaud for his time, organization, and dedication to this program.

Further information on the English ivy growth monitoring program can be obtained by contacting our Stewardship Programs department: Phone: 604-718-6522.

What You Can Do To Help Stop the Spread of invasive Plants

- Investigate the potential invasiveness of plant species before you buy them
- Remove invasive species from your property and/or natural areas
- Avoid letting invasive plants go to fruit or seed
- Dispose of garden waste and hanging baskets into a properly functioning compost, or by thoroughly drying out vegetative material
- Educate others about invasive species and the problems they pose
- Grow native plants that are naturally adapted to the local environment and provide wildlife habitat
- Native plants can be purchased at Garden Works and N.A.T.S Nursery, both of whom have voluntarily committed to stop growing and selling invasive plants

Ivy growth monitoring crew in the field
2009 Stanley Park Ecology Society Nest Box Program

Background

Native wildlife and habitat diversity are essential components of healthy functioning ecosystems and are completely interdependent. For example, insects pollinate many plants (including over one-third of our food crops), which enables the plants to produce fruit. In turn, wildlife species eat both the fruits and the insects. This process allows for a diversity of animals and plants to form mutually beneficial relationships and allows people to have an abundance of food and other resources.

When habitat is degraded, fragmented, or lost, the number and types of wildlife species decline, along with the important roles they play. In North America there have been significant changes to wildlife habitat over the past 100 years. For species such as the blue orchard mason bee (*Osmia lignaria*), wood ducks (*Aix sponsa*), and swallows this change has resulted in a loss of their shelter, food, and tree cavity nesting sites. Pollution and disturbance have also impacted these species.

In 2009, SPES implemented the Stanley Park nest box program with the goal of conserving and enhancing these vulnerable species in Stanley Park. This program has three main objectives:

- construct, install, monitor, and maintain nest boxes for the blue orchard mason bee (*Tachycineta bicolor*) and violet-green (*Tachycineta thalassina*) swallows, and wood ducks;
- involve volunteers in all phases of this project; and
- provide ongoing environmental education about the program and the importance of conserving these species.
Project Results

Swallow and Wood Duck Nest Boxes

• 10 swallow and 3 wood duck boxes were constructed by 6 adults and 5 youth and placed around Lost Lagoon and Beaver Lake.
• 5 volunteers contributed 30 hours of nest box monitoring from May to July.
• Tree swallows fledged offspring from 1 nest box and placed nesting material in one other. Both nest boxes were over water.
• Although precautions were taken to exclude non-native invasive species, house sparrows (Passer domesticus) fledged offspring from one nest box, but a second brood failed to fledge.
• House sparrows attempted to nest in 4 other boxes; all mounted on the Nature House.
• No wood duck boxes were used for nesting, but were used by this species as resting platforms.

Nest box maintenance and re-installation will be undertaken in the spring of 2010 with SPES ‘spring break’ youth program volunteers.

Mason Bee High-rise

• 1 mason bee ‘high-rise’, consisting of 798 nesting tubes and 250 cocoons, was placed in the Rose Garden.
• 25 youth (including Young Naturalists) and 11 adults helped clean the mason bee tubes and cocoons.
• 513 cocoons were produced by mason bees.
Discussion

The 2009 SPES nest box program in Stanley Park was successful in achieving its goal and corresponding objectives. The desired number and type of nest boxes were constructed and installed on time for the 2009 nesting season with valuable help from volunteers and other supporters. Once these boxes were installed, they were monitored on an ongoing basis by a dedicated group of volunteers. Many positive comments were received from the public regarding the nest boxes and they were well used by SPES staff for educational purposes through youth and adult programs, and with many Nature House visitors. SPES will investigate options to deter introduced and invasive house sparrows from using nest boxes in the future.

Acknowledgements

SPES would like to thank David Curror for his time and dedication to this project as well as the many other volunteers who helped with nest box construction and monitoring. We also thank the following organizations and funders who supported the program: Environmental Youth Alliance (EYA), Vancouver Board of Parks and Recreation, HSBC, Vancity, and EcoAction.

Further information on the Nest Box Program can be obtained by contacting our Stewardship Programs department: Phone: 604-718-6522. For further information about blue orchard mason bee ecology and conservation in Vancouver, please visit EYA’s pollinator’s paradise website http://www.masonbeevancouver.com/

What You Can Do To Help Native Birds and Bees:

- Conserve and restore native plant diversity on your property. This provides the best sources of shelter, food, and nesting sites for native wildlife.
- Plant a diversity of native species that offer a succession of flowers, pollen, and nectar throughout growing season for pollinating insects, such as the blue orchard mason bee.
- Preserve dead trees for their value as wildlife habitat.

Tree swallow feeding young at nest box placed on Lost Lagoon in Stanley Park (Photo: Peter Woods).